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CONGESTIVE HEART FAILURE

FACTORS INFLUENCING THE ULTIMATE PROGNOSIS

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The immediate results of the treatment of congestive heart failure due to any cause often are very gratifying. This is especially true of the first break in cardiac compensation. Indeed, the ease with which an edematous patient may be rendered fluid free and the ease with which he is relieved of distressing symptoms by the appropriate use of effective diuretics may lead the patient readily into the mistaken belief that his disease has been cured and that presently he will be able to return to his former mode of living. As the mechanism responsible for congestive heart failure is in most cases an irreversible process with a strong potentiality to progression, it can be assumed safely that cardiac decompensation will recur sooner or later—certainly sooner rather than later if the patient is allowed to foster his conviction of having been restored to normal health by the treatment which has been dispensed to him.

It was with the idea of ascertaining, if possible, what factors, if any, might influence the course of patients whose hearts had been decompensated that this study was undertaken.

Data were procured through the clinical records or through follow-up letters on 150 patients who had received hospital care in the cardiac service for congestive heart failure. These cases, although they were not strictly consecutive, are not selected in any way and should represent a fair cross section of the cases from year to year. The measures employed for the restoration of cardiac function in these cases were essentially those which are recognized universally as the standard method of treatment. These consisted of the use of digitalis and diuretics (mercurial, "acid producing salts," so called, and the xanthine preparations) either individually or in combination, depending on the indications in the individual case, of restriction of fluid and salt and of outlining a protective regimen after the patient had become ambulatory. All patients were strongly urged to establish contact with their family physicians at an early date after their dismissal, so that recurrences of failure might be promptly treated.

ETIOLOGIC FACTORS

In 114 patients (76 per cent) cardiac decompensation was on the basis of hypertension and coronary disease either independently or in association with each other; in 24 patients (16 per cent) the diagnosis was rheumatic heart disease (in 1 of these the diagnosis was Pick's disease); hyperthyroidism was present in 7 patients (4.7 per cent), in 3 in association with hypertension, and in 2 with coronary disease, and 1 patient had rheumatic mitral stenosis. In 3 patients syphilitic aortitis was regarded as the cause of the cardiac failure and in 2 patients the main underlying cause of decompensation was thought to be obesity, although both patients were within the arteriosclerotic age and coronary disease may have played an important part in the breakdown of their cardiac reserve.

Age Distribution.—The majority of patients were between the ages of 50 and 69 years, inclusive (table 1). The average age of the entire series of patients was 57.5 years.

Sex Distribution.—There were 106 men and 44 women, a ratio of about 5:2.

SUBSEQUENT COURSE

At the time when the survey was completed, 128 of the 150 patients had died and only 22 were living. With the aid of the Division of Biometry and Medical Statistics of the Mayo Clinic a survival curve was plotted (reproduced in the accompanying chart). The methods of calculating the necessary data followed the regular principles used in actuarial practice, since some of the patients were still alive at the conclusion of the study. This curve gives the expected number of persons out of 100 who will be living for consecutive years after the first episode of congestive failure. The chart indicates also, for comparison, the computed life expectancy curve for the normal population as well as that for patients who have had another serious disease, namely carcinoma of the stomach in which gastric resection had been carried out (that is, patients with carcinoma of the stomach who were considered to have had operable lesions). The descent of the curve not only is steep, indicating a heavy mortality from year to year, but also continues on practically a straight line, so that only 13 patients out of the original 100 can be expected to be alive at the end of nine years.

In order to determine what factors might have influenced the prognosis in the individual case of congestive heart failure, the records of this group of patients were analyzed, first, by comparing the data relative to those who lived five years or more after the first episode of heart failure with the data relative to those who died within five years after the onset of congestive heart failure; and, second, by a detailed study of the records of those patients who were still alive at the completion of the survey. In this group it was possible to ascertain data not always available among those who had died.

From the Section on Cardiology, Mayo Clinic.

COMPARISON OF DATA RELATIVE TO PATIENTS WHO LIVED FIVE YEARS OR MORE WITH DATA ON THOSE WHO DIED WITHIN FIVE YEARS

Of the entire group, 40 patients survived for five years or longer, and 110 died within five years after their first break in cardiac compensation. The significant data relative to the two groups are summarized in table 2. Among those who lived five years or more there were a greater proportion of persons in the earlier decades of life (45 years or less), a greater proportion of women and a greater proportion of patients who had rheumatic heart disease than among those who lived less than five years.

TABLE 1.—*Age at First Congestive Failure*

Age, Years	Men		Women		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
20-29	1	1	1	2	2	1
30-39	3	3	6	14	9	6
40-49	16	15	9	20	25	17
50-59	32	30	13	30	45	30
60-69	28	26	13	30	51	34
70-79	16	15	2	4	18	12
Total	106	100	44	100	150	100

The group that had rheumatic heart disease is not large enough to establish differences in prognostic trends as determined by the different valvular lesions, but other studies [1] have illustrated the difference in the life history of patients who have mitral endocarditis on the one hand and those who have aortic valvular disease of rheumatic origin on the other. In short, it may be stated that aortic lesions are tolerated better than is mitral stenosis, so that there is a tendency for congestive heart failure to supervene earlier in patients who have mitral disease than in those who have rheumatic aortic lesions. At the same time compensation, once restored, is maintained poorly by patients who have rheumatic aortic lesions,[2] in contrast with those afflicted with mitral stenosis, who may respond quite satisfactorily to treatment through repeated episodes of recurrent congestive heart failure. The poor outlook of patients who have syphilitic aortitis associated with congestive heart failure has been recognized universally.

TABLE 2.—*A Comparison of Patients Who Survived Five Years or More with Those Who Died Within Five Years of the Onset of Congestive Heart Failure*

	Less than Five Years (110 Patients)		Five Years or More (40 Patients)	
	Cases	Per Cent	Cases	Per Cent
45 years old or less	15	14	11	28
Proportion of women	14	13	12	30
Proportion of rheumatic heart disease	30	27	14	35
Proportion of coronary disease or hypertension or both	92	84	25	62
Significant electrocardiographic findings (all types)	96	87	31	78
Auricular fibrillation	36	33	17	42
Significant T wave changes	79	72	20	50
Conduction defects (all types)	29	26	5	12
Essentially normal electrocardiograms	14	13	9	22
Cardiac enlargement				
Grade 3 or 4	57	52	21	52
Grade 2	39	36	12	30
Grade 1	8	7	3	8
Grade 0	6	5	4	10

The incidence of cardiac hypertrophy was not found to be significantly at variance in the two groups of cases. It must be recalled here that this study deals with patients whose cardiac reserve had been exhausted to the point of outspoken congestive heart failure. In a comprehensive study carried out by Grant,[3] comprising 1,000 men in whom organic heart disease had been discovered ten years prior to his survey, among recruits of the last World War, it was shown clearly that the larger the heart the more likely was congestive heart failure to ensue. These patients were the ones who were noted also to have a corresponding degree of limitation of tolerance to exercise—the most reliable criterion whereon to base a cardiac prognosis.

It would seem that, after congestive heart failure has entered the picture, new factors assume importance in determining the future progress of the patient.

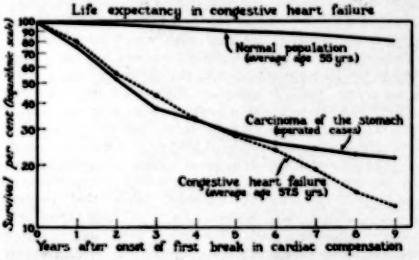

Fig. 1.—Survival curves for patients who have had congestive heart failure, for the normal population and for patients on whom gastric resection has been performed for carcinoma of the stomach. The last-named survival curve is based on studies carried out by Walters and his associates.

A comparison of the electrocardiographic findings in the two groups is of interest and at first sight the differences would seem significant from the standpoint of prognosis. Thus there is a higher incidence of electrocardiographic abnormalities among the group of patients who succumbed during the first five years after the initial break of cardiac compensation. There is also a higher incidence of conduction defects (auriculoventricular as well as ventricular conduction disturbances) and of significant T wave alterations (comprising changes in the T waves either in lead 1 only or in leads 1 and 2, in the T waves of leads 2 and 3 or in the T waves in all three conventional leads). In this connection it should be recalled that the almost universal use of digitalis in treatment of patients who have congestive heart failure undoubtedly must be responsible to some degree for the frequency of T wave alterations; but this would hold true, of course, as much for one group as it would for the other.

As there is a preponderance of older persons among those who succumbed within the first five years after the onset of cardiac decompensation, and as there was among this group a higher incidence of coronary and hypertensive heart disease (the commonest cause of

1. Willius, F. A.: A Study of the Course of Rheumatic Heart Disease, Am. Heart J. 3:139-145 (Dec.) 1927.

2. Dry, T. J., and Willius, F. A.: Calcareous Disease of the Aortic Valve: A Study of 228 Cases, Am. Heart J. 17:138-157 (Feb.) 1939.

3. Grant, R. T.: After-Histories for Ten Years of One Thousand Men Suffering from Heart Disease: Study in Prognosis, Heart 6:275-483 (June) 1933.

T wave inversion and of conduction disturbances of all kinds), these differences in electrocardiographic findings lose their significance to some extent in assessing the prognosis of patients who have reached the stage of congestive heart failure. Auricular fibrillation, it will be noted, occurred much more frequently in the group patients suffering from rheumatic heart disease, the majority of whom had mitral stenosis.

Among those whose clinical course was more favorable after cardiac compensation had been restored, it will be illustrated presently that all types of gross electrocardiographic abnormalities and all degrees of cardiac

TABLE 3.—*The Status of Patients Who Were Still Alive at the Completion of the Survey*

Years After First Failure	Case Number	Age,* Years, and Sex	Cause	Heart Size	Electrocardiogram	Cardiac Reserve	Treatment	Comments
4	1	49 ♀	Mitral stenosis	17 cm.	Right ventricular preponderance	Compensated....	Moderate restriction and digitalis	Had severe anemia (controlled)
	2	62 ♀	Hypertension	17 cm.	Auricular fibrillation, inverted T 1, 2, 3	Compensated most of time	Restricted program, periodic salyrgan, digitalis	
5	3	55 ♂	Mitral stenosis	Enlarged, 1†	Auricular fibrillation	Compensated....	Moderate restriction, digitalis	
	4	70 ♂	Coronary sclerosis	Normal	Diphasic T 2, 3	Compensated....	Moderate restriction	
6	5	60 ♂	Obesity, coronary disease	17.5 cm.	Left ventricular preponderance, inverted T 1	Compensated....	Moderate restriction, program well supervised	Weighed 300 lb. at time of failure
	6	65 ♀	Hypertension	18.5 cm.	Auricular fibrillation, left ventricular preponderance	Compensated....	Moderate restriction, digitalis	
7	7	41 ♀	Mitral stenosis	Enlarged, 3	Auricular fibrillation, right ventricular preponderance	Decompensated at intervals	Salyrgan regularly, digitalis and oral diuretics	
	8	61 ♀	Hypertension, mitral stenosis	Enlarged, 3	Right ventricular preponderance	Compensated....	Under supervision of family physician	Was obese
	9	72 ♀	Hypertension, hyperthyroidism	Enlarged, 2-3	Auricular fibrillation	Decompensated at intervals	Salyrgan at regular intervals, restricted activities	Thyroidectomy done at the age of 65 years
8	10	62 ♂	Aortic regurgitation	Enlarged, 3	Inverted T 1, 2	Decompensated at intervals	Restricted activity, digitalis	Serologic reaction for syphilis positive
	11	45 ♂	Adhesive pericarditis	Enlarged, 2	Diphasic T 1, 2, 3	Compensated....	Restricted activity	
	12	77 ♀	Hypertension, hyperthyroidism	Enlarged, 2	Auricular fibrillation, left ventricular preponderance	Recurrent failure	Much restriction	Thyroidectomy at the age of 69 years
9	13	74 ♀	Coronary disease, hyperthyroidism	Enlarged, 3	Left ventricular preponderance, bundle branch block	Compensated since thyroidectomy	Only moderate restriction	Thyroidectomy at the age of 65 years
10	14	62 ♂	Hypertension	Enlarged, 3	Left ventricular preponderance	Compensated....	Restricted activity	Weighed 215 lb., weight reduced to 180 lb.
	15	60 ♂	Hypertension	Normal	Negative	Decompensated at times	Restrictions, digitalis	Was in bed for a long time (fractured leg)
	16	63 ♂	Hypertension	19.5 cm.	Auricular fibrillation, inverted T 1	Compensated....	Restrictions, digitalis	Weighed 215 lb.
11	17	50 ♀	Mitral stenosis, hyperthyroidism	Enlarged, 3	Auricular fibrillation, right ventricular preponderance	Compensated....	Considerable restrictions, digitalis	Thyroidectomy at the age of 37 years
	18	47 ♂	Mitral stenosis	Enlarged, 3	Auricular fibrillation	Frequently decompensated	Much restriction and frequent salyrgan injections	Apparently cooperates poorly
	19	38 ♀	Mitral stenosis, hypertension	Enlarged, 3	Auricular fibrillation, inverted T 2, 3	Compensated....	Visits heart clinic regularly, digitalis	Thyroidectomy at the age of 27 years
12	20	52 ♂	Pick's disease	?	Right ventricular preponderance, inverted T 2, 3	Is in chronic failure	Being treated for failure continuously	
	21	55 ♀	Mitral stenosis, hypertension	Enlarged, 3	Auricular fibrillation, right ventricular preponderance	Recurrent failure	Restrictions, salyrgan, digitalis	
13	22	60 ♂	Coronary sclerosis	Not enlarged	Left ventricular preponderance, diphasic T 1, 2	Compensated....	Much restrictions, digitalis	

* At the completion of the survey.
† On the basis of 1 to 4, in which 1 designates the mildest and 4 the most severe condition.

that survived for five years or more after the onset of cardiac decompensation, a fact again which must not be construed as indicative of a more favorable clinical course for patients whose auricles fibrillate than for those who maintain a sinus rhythm. The explanation is more likely to be found in the fact that there was a preponderance in this group of relatively younger patients in which hypertrophy were found to exist at the time when the patients were first treated for congestive heart failure.

The immediate response to treatment and the degree of cardiac decompensation may be misleading criteria at times in reflecting the future progress of the patient who has congestive heart failure. Though many patients are easily rendered fluid free, recurrence of cardiac

failure may be equally prompt, and, conversely, an initially slow response to treatment may be followed eventually by surprisingly good restoration of compensation.

THE STATUS OF PATIENTS STILL ALIVE AT THE COMPLETION OF THE SURVEY

The data regarding the 22 patients who were alive at the completion of the survey have been summarized in table 3. Attention is drawn to the following findings:

1. There is a high incidence of rheumatic mitral stenosis. It is to be noted that there was but one case of aortic regurgitation in the group. At the time of the original examination of this patient a diagnosis of syphilitic aortitis was made on the basis of a positive serologic reaction for syphilis. The probability that this was a rheumatic aortic lesion occurring in a patient who coincidentally had syphilis must be entertained strongly. In the entire group of 150 patients studied, the diagnosis of rheumatic aortic disease was made in 7 instances (not including the aforenamed case). Only one of these patients lived beyond two years after the onset of congestive heart failure. This particular patient, who was noted to have a complete auriculoventricular dissociation and a moderately enlarged heart, lived six years after the first break in cardiac compensation. A study of 228 cases of calcareous aortic stenosis indicated clearly the late onset of symptoms in aortic disease but the poor response to treatment after the heart actually has failed.

2. The sexes are equally represented among this group of patients who were still living at the time the survey was completed. It is to be recalled that the proportion of men to women in the entire group was 5:2.

3. In almost every case there is cardiac enlargement, varying from moderate to gross hypertrophy. This fact indicates again that one's sense of values referable to cardiac size as a prognostic criterion is modified somewhat after heart failure occurs.

4. In 50 per cent of the cases the hearts were fibrillating at the time when the patients were being treated for heart failure, and gross electrocardiographic abnormalities existed in almost every case.

5. Only a few patients were living a life which might approximate normal; the very prolongation of life seems to depend on systematic supervision of the patient and on an indefinite extension of a therapeutic program intended to meet recurrences of cardiac failure when they occur.

6. The unburdening of extracardiac loads such as anemia, hyperthyroidism and obesity (and, one might add, though not represented in this group, avitaminosis and myxedema) may aid considerably in restoring cardiac reserve to an already crippled heart.

COMMENT

The occurrence of congestive heart failure regardless of the cause represents, with few exceptions, a serious phase of heart disease. The exceptions refer to those instances in which it is possible to relieve the load which the cardiac apparatus is carrying, as in the correction of severe anemia, or avitaminosis, the control of hyperthyroidism or of myxedema and the reduction of the peripheral capillary bed—specifically by reduction of the weight of obese patients.

The withdrawal of a patient from an occupation involving much physical activity to a more sedentary mode of life is an approximation to the procedures enumerated but is less effective, since in the majority of cases of congestive heart failure the process underlying the cardiac decompensation results from an irreversible and a progressive disease. A heavy mortality rate from year to year is the rule in patients whose hearts have once been decompensated. Mitral disease has a tendency to cause heart failure relatively early in life, but the reestablishment of compensation usually can be accomplished at times after repeated failures in fact. Aortic disease of rheumatic origin has a tendency to cause heart failure relatively later in life, but the maintenance of compensation once restored is seldom lasting. Similarly, congestive heart failure due to syphilitic aortic disease has a poor prognosis.

Hypertensive and coronary disease may follow either tendency after the first break in cardiac compensation. Malignant hypertension has a poor prognosis even independent of cardiac failure. Similarly, acute myocardial infarction tends to increase the gravity of coronary sclerosis. It is known further that the coexistence of pulmonary disease militates against recovery from congestive heart failure.

The presence of cardiac enlargement seems clearly to favor the onset of cardiac decompensation; yet some patients who have considerable cardiac hypertrophy seem to do as well (or as poorly) as do many with lesser degrees of enlargement. The same remarks as apply to cardiac enlargement could apply readily to patients whose auricles fibrillate. The observation has been made [3] that patients in congestive heart failure respond more satisfactorily to treatment if auricular fibrillation is also present, regardless of the cause, than if it is not present, and this study seems to bear this observation out. Electrocardiographic findings are of little help in the prognosis of congestive heart failure. They conform to the disease responsible for the cardiac decompensation rather than to its gravity. The initial response to treatment does not reflect necessarily any reliable prognostic trend.

If we can learn a lesson from those patients who have continued to live after their hearts have once decompensated, it is simply that recurrences of failure must be not only anticipated as a possibility but actually expected, for the prolongation of life seems to depend on a systematic therapeutic program which calls for close cooperation between the patient and his physician.

The risk of administering an injection of a mercurial diuretic agent when it is perhaps not necessary is far less than the risk of allowing congestive failure to proceed from its earliest stages (when clinical evidences are still lacking). Many patients learn to recognize subjectively the earlier symptoms of return of heart failure; others are warned of oncoming decompensation by a daily increase in their weight. The choice of drugs in the treatment of congestive heart failure and in the maintenance of compensation is a matter of individualization, but digitalis seldom can be left out of the therapeutic program of any patient who has or has had congestive heart failure, regardless of its cause.

WAR INJURIES TO THE HEAD

TREATMENT OF PENETRATING WOUNDS

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As a result of the bombing of Hawaii on Dec. 7, 1941 the opportunity was given to study and operate on a large number of patients with neurosurgical injuries.[1] This communication is a report of experience in the treatment of penetrating wounds of the head as seen among the first American casualties of the present war.

Nearly all these wounds were compound depressed fractures of the skull produced by fragments of shrapnel which varied in size from thin flat pieces less than 1 cm. across (fig. 3) to large, heavy, irregular chunks of steel 3.5 to 4 cm. wide and 0.5 to 1 cm. in thickness (fig. 1). The larger pieces of metal all had extremely sharp, jagged points, which ripped great irregular holes in the tissues of the head through which they passed. There were no round smooth bullets found in the group of patients treated.

The nature of the wound thus produced depended on the size of the missile and its position when making contact with the head. Some scalp wounds were so small as to be almost missed on casual examination. One such patient had a small wound in his forehead which appeared to be nothing more than a scratch. It was not picked up as a penetrating wound until twenty-four hours later, when roentgenograms of the skull revealed a metallic foreign body about 1 cm. in diameter and 1 to 2 mm. in thickness deep in the opposite frontal lobe (fig. 3). This missile had obviously struck the head on edge. The large wounds in the scalp were jagged, irregular defects with multiple radiating lacerations and considerable destruction of tissue.

Injuries to the skull by these missiles were interesting. The metallic fragments were apparently all traveling at high speed, as the defects produced in the skull were uniformly circumscribed holes (figs. 2, 3 and 4). No long linear fracture lines radiating from the point of entry of the foreign body were seen in any of the fractures. The smaller metal fragments usually made correspondingly small holes in the outer table of the skull, whereas the hole found in the inner table was many times larger than the missile. The shattered bone fragments were carried deep into the brain, lacerating cortical vessels and brain substance over a much wider area than what one would suspect from the size of the penetrating missile. The more extensive injuries to the head in which large portions of the skull were carried away or large pieces of bone driven deep into the brain were obviously fatal injuries. These patients were moribund on admission, and no attempt was made to treat them surgically.

The injury to the brain and its coverings was found as a rule to be much more extensive than one would anticipate from either the size of the foreign body or the condition of the patient. Large gaping defects were always found in the dura mater, having been made not only by the penetrating object but also by the fractured pieces of bone carried in with it. Cortical and subcortical vessels were torn, resulting in subarachnoid hemorrhages, some of which reached the proportions of small hematomas at the site of the injury. Hematomas of various sizes were often found deep in the white matter of the hemispheres along the tract of the foreign body. In the larger compound wounds, by the time the patient reached the operating room, liquefied cerebral tissue and cerebrospinal fluid were always found herniating through the defect in the skin.

1. It is not permissible to report the number of persons treated at this time.

TREATMENT

Treatment of wounds to the head, like traumatic wounds elsewhere, is directed toward (1) restoring to normal as near as possible the injured tissues and (2) preventing complications which may arise secondary to the injury and result in disability, deformity or death.

The preliminary treatment, prior to operation, is extremely important. When the wounded person is first seen at the receiving station the hair about the wound in the head is clipped widely with the hair clippers. The edges of the lacerated wounds are cleansed with soap and water. Any large bleeding vessels in the lacerated scalp are stopped with a hemostat, local pressure or a piece of rubber tubing about the head. A temporary dressing is then applied after the wound has

Fig. 1.—Example of the type of sharp, irregular pieces of shrapnel found in war wounds; × 2.

been filled with powder of one of the sulfonamide drugs. Unless the patient has extensive painful wounds elsewhere, the routine use of morphine is contraindicated.

On admission to the hospital the patients are first examined neurologically and given tetanus antitoxin, and roentgenograms of the skull are taken, stereoscopic views whenever possible. If the patient shows signs of shock, this is first treated with intravenous saline solution, blood plasma or whole blood when the latter can be obtained. After shock has been treated the operation is not delayed any longer than necessary. Because of the large number of cases treated, it was necessary in many instances to delay as long as twenty-four to thirty-six hours after the injury. No infection was encountered in any of these cases in which the preliminary treatment described of cleansing the wound and applying the sulfonamide powder was employed.

As a local anesthetic 2 per cent procaine hydrochloride was found adequate for the majority of our patients, since they were conscious and cooperative. Restless and uncooperative patients can be given avertin with amy-

lene hydrate supplemented with intravenous pentothal sodium.

In the treatment of the scalp wounds a wide area circumscribing the wound is painted with iodine and a local circular block anesthesia induced. The wound can then be scrubbed and cleansed without pain to the patient. Large quantities of sterile water and green soap and a mild antiseptic are used. All jagged irregular edges about the wound are cut away. It was found that large defects in the scalp, up to 4 cm., could be approximated and closed tightly by adequate undermining. A fusiform incision is made around the wound. After the scalp has been slid so that the edges are approximated, the tension on the closure sutures can be relieved by placing one or two anchor sutures 1 cm. or so back from the incision edge. Such a suture passes through the scalp in its new position and beneath the periosteum. It is tied on the outside over a small roll of gauze. All scalp wounds are closed without drains by two layers of black silk. Larger scalp wounds are closed by the method of Sargent[2]; i. e., undercutting the outer layer of the scalp and making a new incision on either side of the wound so that it can be approximated. Two raw crescent shaped areas are thus exposed, but these rapidly granulate in and epithelize.

Fig. 2.—Postoperative appearance of skull from which the shrapnel shown in figure 1 was removed. A silver clip lying beneath the middle fossa of the skull indicates the depth of penetration (arrow).

When the penetrating hole in the skull is small, one can obtain adequate exposure for the treatment of the underlying structures by rongeuring away the jagged edges of bone and enlarging the defect. Larger holes in the skull, however, with more extensive damage to the dura mater and brain, require more exposure and for these a small bone flap is elevated along one side of the hole in the skull. The exposure of the bone flap in the larger wounds is important also in order to obtain a large piece of periosteum from the skull to be used in the repair of the dura mater.

The defects in the dura mater, like those in the scalp, are usually jagged, irregular holes. They are always larger than the scalp wound, owing to tearing by the fractured fragments of skull in addition to the missile. The edges of the dural defects are debrided of the small irregular tags to obtain straight, clean edges. The cautery for small bleeders on these edges is avoided, hemostasis being obtained by mosquito clamps. All dural defects are closed tightly with the patch obtained from the periosteum of the overlying skull. The importance of a tight closure of the dura mater with such a patch cannot be overemphasized, particularly when the wound passes through any of the paranasal sinuses. One can thus prevent the formation of a fistula with cerebrospinal fluid draining through the nose and the possible development of meningitis from the adjacent potentially infected sinuses.

One of our patients was struck between the eyes with a large jagged piece of steel (fig. 1). The missile passed directly through the frontal sinus and buried itself in the skull to a depth of 9 cm. (fig. 2). In its pathway the roof of the left and medial wall of the right orbit and the cribriform plate were carried away. The ethmoid and sphenoid sinuses were destroyed. The contents of the left orbit, including the optic nerve, were torn. A hole measuring 4 by 6.5 cm. was opened up in the dura mater covering the inferior surface of both frontal lobes. A large periosteal patch was removed from the bone flap and this extensive defect closed tightly by means of interrupted black silk sutures. The wound was filled with sulfanilamide powder and closed without drains. No cerebrospinal fluid fistula nor infection developed, and the patient is recovering.

A thorough débridement and cleansing of the tract of the missile through the brain is perhaps the most important part of the operative procedure. Hair, dirt, grass and fragments of fractured bone were found to have been carried into the brain by the penetrating missile. The blood clots along the tract and the damaged brain are removed with the suction. The fragments of bone and the foreign bodies are picked out of the wound and the sinus tracts then irrigated with copious quantities of warm sterile saline solution.

Some surgeons recommend palpation of the tract with the finger. This can be done when the wound is larger than the finger. The smaller tracts are best explored by the method advocated by Dr. Harvey Cushing; i. e., palpating the depths of the wound with a soft rubber catheter.

Fig. 3.—Foreign body in right cerebral hemisphere. Arrow indicates point of entry on left. The patient died forty-eight hours later of an extensive subdural hemorrhage from a vessel torn in the falx.

When an inspection of the tract in the brain shows that it is completely free from foreign material and all bleeding points have been arrested, the tract is filled with sulfanilamide powder before the wound is closed. Although none of our patients have been followed for a sufficient time to make a statement as to the post-

2. Mitchiner, P. H., and Cowell, E. M.: Air Raid: XI. Wounds of Head, Spine and Peripheral Nerves, Lancet 1:639-645, 1939.

operative complications, it seems from reports of others [3] that, if the aforementioned treatment is carried out, the possibility of subsequent formation of a brain abscess or meningitis will be avoided.

The question arises as to whether or not the metallic foreign bodies should be removed from the brain or left in. In all these cases in which the missile was at all accessible it was removed. However, in instances in which the metal was small and had penetrated the brain to a great depth and it was obvious that greater damage to the brain would be produced by attempting to recover it, the foreign body was not removed. In 1 such case (fig. 3) the shrapnel entered the head in the frontal region high on the left side and passed directly through the left frontal lobe and lodged about 2 cm. from the midline on the right side. Obviously no attempt was made to remove this foreign body, although the tract in the brain through which it passed and the dura and skull were treated as described. The chief danger in leaving metallic foreign bodies in the brain is the development of convulsions at a later date. It has been said that 5 to 50 per cent of persons with bullets in their brain will eventually develop epilepsy. These attacks may not begin for six months or more after the injury. The use of electromagnets for the recovery of these bodies has been reported.[4] This method may be of value in selected cases.

The postoperative care of these patients consists chiefly of absolute bed rest. Pain is controlled with acetylsalicylic acid and barbiturates. All patients are given chemotherapy for a week or ten days or longer after operation depending on the temperature reaction and extent of injury. The routine use of an anticonvulsive drug in adequate doses is recommended. Soluble phenobarbital 0.065 Gm. three times a day was used. The patients are strongly advised to continue the drug for a period of at least one year after the injury.

Intravenous hypertonic solutions were found unnecessary in these cases. Lumbar punctures were done only when persistent signs of subarachnoid hemorrhage appeared.

No postoperative complications were encountered in the patients operated on within the first forty-eight hours, with one exception. This patient died suddenly the day after operation of an extensive subdural hemorrhage (fig. 3). Another patient, seen in a small rural hospital four and a half days after his injury, died of meningitis (fig. 4). When postoperative infections occur it may become necessary to reopen and pack the wound for drainage. The gauze used for packing is filled with sulfanilamide powder.

PHYSIOLOGIC OBSERVATIONS

Some interesting observations were made on the physiology of this type of wounds in the head. Few of the patients with penetrating wounds of the brain were brought to the receiving station in an unconscious state. The majority of them had not even been unconscious but were able to recall everything that had transpired from the time they were hit until they arrived at the hospital. This was a most surprising fact to the doctors who saw these cases. Patients with large gaping wounds in the frontal areas with considerable quantities of cerebral tissue oozing from the wounds were found to be conscious, cooperative, rational and able to give their identification. Most of the patients were in a state of mild shock with lowered blood pressure and pulse rates from 90 to 110. Aside from this the normal physiologic functions did not appear to be altered materially. These findings applied only to the penetrating wounds of the head. Patients whose lesions had been produced by a large object striking the head, or vice versa, carrying away large sections of brain and skull or producing extensive depressions, were obviously deeply unconscious. They showed slow, irregular heaving respiration, weak, rapid, thready pulse and elevated blood pressure. All patients admitted in this condition died within a few minutes to twelve hours after admission to the hospital.

Fig. 4.—Irregular piece of shrapnel lying partly in lateral ventricle. Note air in temporal horn of ventricle and about hole in skull. This wound was infected.

The observations on the state of consciousness of patients with penetrating wounds of the brain is in accord with the present accepted theory of the physiology of the loss of consciousness from head injuries. The experimental work of Walker,[5] Denny-Brown and Russel [6] and others has shown that loss of consciousness associated with injury to the head is primarily the result of microscopic changes in nerve cells of the brain resulting from physical acceleration of these cells. Walker cites the case of a man lying under his automobile with his head resting on the ground. When the car jack slipped, his head was crushed between the car and the ground and an extensive fracture of the skull produced. The patient did not lose consciousness even for a second. The opposite condition is that of a person who walks into a door, striking his head. He falls to the floor, is dazed for several minutes, develops a violent headache, vomits and is extremely ill. He shows all the usual signs of a cerebral concussion. In the first case the brain was not affected by inertia, having been held in a fixed position when struck. The patient did not lose consciousness. In the second case the brain was set into motion by the blow, and the damaging effect on the brain produced by the physical acceleration of the nerve cells was evident by the illness which followed.

Other physiologic conditions which have been said to contribute or cause the loss of consciousness in head

3. Guleke, N.: Should the Fresh Bullet Wounds of the Brain Be Sutured? Deutsche Militärarzt **6**:1, 1941. Vogeler, K.: Cranial Gunshot Wounds: Therapy, Prognosis and Sequelae, Med. Welt **14**:1084, 1940; **14**:113, 1940.

4. Heller, E.: Establishment of Centers for Head Wounds in War Time and Use of Giant Magnets for Removal of Bullets Remaining in the Brain, Chirurg **11**:705-709, 1939.

5. Walker, A. Earl: Penetrating Wounds of the Head, read before the Academy of Neurological Surgery at Los Angeles, Nov. 11, 1941.

6. Denny-Brown, D., and Russel, W. R.: Experimental Cerebral Concussion, J. Physiol. **99**:153, 1940.

injuries are loss of blood, damage to brain substance itself and cerebral anemia. All three of these conditions were seen in the majority of these patients. There was considerable loss of blood in almost all cases due to wounds in other parts of the body, some of which were very extensive, such as the loss of one or more extremities. With this loss of blood a cerebral anemia was certainly present as part of the condition of shock which these patients showed. The damage to brain tissue was as a rule rather extensive, yet in these patients consciousness was not impaired.

It is my impression that the reason these patients did not lose consciousness from their injury was the fact that the force applied to the head was concentrated in such a small area compared to the entire area of the skull that generalized acceleration of the brain was not produced. The speed with which the objects were traveling was so great that the head was struck, perforated and penetrated before the brain as a whole had time to be set into motion. The absence of linear fractures of the skull around the point of entrance is evidence of the high speed the missiles were traveling. The threshold of acceleration necessary to produce unconsciousness, as shown by Denny-Brown and Russel,[6] is the change of speed of the head from 0 to 23 feet per second. It would seem impossible for a small missile striking the head at high speed to set the entire head in motion at this rate.

LITERATURE

While the literature on the treatment of closed craniocerebral injuries has been voluminous, there has been surprisingly little reference to penetrating wounds of the brain in the period between the appearance of the medical records of the first world war and 1938. In the past three years (1938 to 1941) surgeons and neurosurgeons in almost every country of Europe and Asia have reported their experiences with this type of wound. Many reports have come out of Germany,[7] France,[8] England,[9] Australia,[10] Norway,[11] Italy[12] and even China.[13] The low mortality rate reported by these authors shows the value of the modern methods of treatment of these wounds. The mortality of brain wounds in the early part of the first world war was over 60 per cent.[14] Dr. Harvey Cushing lowered this figure to 28 per cent by improving the operative technic. The mortality rate of the second world war should be far below this figure, judging from these recent reports.

A few important points which most authors agree on in the treatment of penetrating wounds of the head may be mentioned: 1. The optimum time to operate is within six hours after the injury, but wounds which have gone untreated as long as forty-eight hours should be treated as fresh wounds and closed without drains, unless there is obvious infection. After forty-eight hours the wound is treated as a brain abscess with open drainage.[15] 2. All metallic foreign bodies should be removed if possible, because they lead to secondary abscess and epilepsy. 3. The defect in the dura mater should be closed completely in clean wounds with fascia or periosteal grafts. 4. Generous use of sulfanilamide not only in the scalp and skull wound but in the missile tract in the brain is recommended.[16] Sulfanilamide is preferred because it has been found to be much more rapidly absorbed into the blood stream from an open wound than any of the other sulfonamide drugs.[17]

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THE SOLDIER'S IRRITABLE HEART

CERTAIN OBSERVATIONS OF INTEREST

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Much has been written concerning the irritable heart of soldiers, the best by DaCosta in 1871 and a good deal of varied interest in the last two decades since the first world war. The chief type has been well described under various names, best known of which are neurocirculatory asthenia and effort syndrome. The fundamental cause, however, remains obscure, the types and variations are not well differentiated, and early recognition at the time of recruitment of persons prone to a disabling degree of the condition under the stress of heavy military service is sometimes far from easy. These problems still await solution.

Meanwhile there are points of immediate interest and importance about the condition that are inadequately recognized but should be helpful in the present military emergency. These I wish herewith briefly to present.

In the first place, true irritability of the heart as indicated by extrasystoles or paroxysmal tachycardia is not connected in any way with neurocirculatory asthenia except accidentally. In fact, most persons with the latter condition tend to have little arrhythmia of the heart. The nervous tachycardia so often present in neurocirculatory asthenia and in men being examined for entrance into military service tends actually to keep away extrasystoles. Cardiac arrhythmia may, however, easily induce a cardiac neurosis unless care is taken not to exaggerate its importance and unless steps are planned to try to eradicate it. Rarely may the fatigue from excessive arrhythmia help to induce neurocirculatory asthenia.

The next point also concerns definition. Neurocirculatory asthenia is not established as yet primarily

7. Peiper, H.: Craniocerebral Gunshot Injuries in War, Deutsche med. Wchnschr. **65**: 1598-1601, 1939. Jentzer, A.: Cranial Trauma and Craniocerebral Projectile Wounds, Schweiz. med. Wchnschr. **70**: 648, 667, 1940. Wolf, W.: Surgical Therapy of Craniocerebral Injuries in World War, München. med. Wchenschr. **87**: 796-799. Guleke,[3] Schulze and Belzendahl.[15] Vogeler.[5]

8. Garcin, R., and Guillaume, J.: Therapy of Craniocerebral Wounds from War Projectiles: Results Obtained by Application of Modern Neurosurgical Methods in Medical Units at Front, Mém. Acad. de chir. **66**: 124-136, 1940; Therapy in Neurosurgical Unit at Front, ibid. **66**: 557-566, 1940. de Martel, T.: Craniocerebral Injuries in Military Surgery, ibid. **66**: 612-613, 1940. Vincent, C., and Lafon, J. L.: Craniocerebral Wounds Due to Projectiles: Neurosurgical Therapy, J. de méd. et chir. prat. **112**: 87-91, 1940. Vincent, C.: Therapy of Craniocerebral Wounds from Projectiles, Mém. Acad. de chir. **65**: 1034-1044, 1939. Lauwers, E.: Therapy of Craniocerebral Wounds Caused by Projectiles, Presse méd. **48**: 30-32, 1940. Ducing, J.; d'Harcourt, J.; Grimo, S., and Folch, P.: General Principles of Treatment of Recent Craniocephalic Wounds Caused by War Projectiles, Rev. de chir. **77**: 625-644, 1940. Garcin and Guillaume.[8] Aubin and Raynaud.[16] Heller.[4]

9. Jefferson, G.: War Wounds, Brit. M. J. **2**: 347, 1939. Cairns, H.: Gunshot Wounds in 1940, J. Roy. Army M. Corps **76**: 12-22, 1941. Lockwood, A. L.: Surgical Problems of War, Brit. M. J. **1**: 445-447, 1940. Mitchiner and Cowell.[3]

10. Money, R. A.: War Wounds, M. J. Australia **1**: 443-447, 1940.

11. Olivecrona, H.: Gunshot Wounds, Nord. Med. **2**: 1543-1547, 1939.

12. Decker, P., and Rossier, J.: Craniocerebral Wounds in War Surgery, Rev. méd. de la Suisse Rom. **60**: 321-356, 1940.

13. Von Morini, A.: Treatment of Gunshot Wounds of Skull and Brain Under War Time Conditions, Chinese M. J. **58**: 477-488, 1938.

14. Coleman, Claud D.: War Wounds of the Nervous System, Ann. Surg. **113**: 712-719, 1941.

15. Schulze, W., and Belzendahl, W.: The Treatment of Infected Shot Gun Wounds of the Skull and Brain in Military Hospital, Deutsche Militärarzt **5**: 514, 1940. Guleke.[3]

16. Garcin, R., and Guillaume, J.: Systemic Association of Preventive Sulfanilamide Therapy and Early Surgical Therapy of Craniocerebral Wounds Caused by War Projectiles: Value of Sulfapyridine, Mém. Acad. de chir. **66**: 753-759, 1940. Aubin, H., and Reynaud, M.: Large Amounts of Sulfanilamide and Sulfapyridine in Craniocerebral Wounds, Especially Those Due to War Trauma, ibid. **66**: 787-790, 1940.

17. Goodwin, L. G., and Findley, J.: Absorption and Excretion of Sulfonamides Applied Locally; Observations in Rabbits, Lancet **240**: 691, 1941.

as a psychoneurosis, although such is at least a common complication. A cardiac or other neurosis may be present with none of the evidence of neurocirculatory asthenia, which is clinically a symptom complex resulting chiefly from fatigue and consisting of various combinations of palpitation, heartache, dyspnea (often sighing), faintness, easy fatigability, increased perspiration, tremor and nervousness, in whole or in part. Anxiety neuroses and hysteria may induce hyperventilation and secondary palpitation and faintness, and perhaps even the entire symptom complex of "neurocirculatory asthenia," but fatigue per se without any initial neurosis at all can apparently set off typical neurocirculatory asthenia. How much of a role anxiety neuroses and how much fatigue per se and how much their combination, or still other factors, have to do with the development of neurocirculatory asthenia, and whether it is to be adjudged a disorder of the vegetative nervous system to be set off by any one of a variety of causes, are not yet known. More studies of the relationship between these various conditions are needed, and such studies are actually now under way.

In the next place, the borderline between "neurocirculatory asthenia" and "neurasthenia" is apparently so wide, if any exists at all, that accurate statistics of the incidence of the former are at present impossible. It is certain, for example, that many cases of neurocirculatory asthenia are being designated as neurasthenia or anxiety or fatigue neurosis or even psychoneurosis or constitutional psychopathic inferiority in the examination of the draft for the army and in medical diagnoses and discharges of soldiers already in service. For the present, for the sake of clarity, there should be some attempt at more accurate definition or at least designation. If there is a psychoneurosis with symptoms of neurocirculatory asthenia, both conditions should be stated to be present, with emphasis on the one which is preponderant; if only one of the two conditions is present, the correct designation should be given. Neurocirculatory asthenia should not yet be called a psychoneurosis, or vice versa; it is hoped in the future, as stated, to have a clearer understanding of their relationship.

It is of interest that as yet there has been relatively little neurocirculatory asthenia in the American or even in the British army, partly because an attempt has been made to weed out possible candidates for the condition before enlistment and partly because the strain of actual combat duty in the British army has been as yet not heavy, except at Dunkerque and in Greece and Crete and now in North Africa. More will undoubtedly crop up when military operations become more extensive. Even the civilian population under heavy bombardment evidently suffered little from neurocirculatory asthenia.

And, finally, it has been found wise in England to treat the average run of the cases of neurocirculatory asthenia that have arisen in the armed forces as ordinary medical cases of fatigue without referring them to either cardiologist or psychiatrist, in this way avoiding overemphasis of either heart or mental state in the patient's mind. This seems a wise and sensible procedure.

Thus, for the time being at least, it is important to differentiate between the irritable heart with arrhythmia, neurocirculatory asthenia, and psychoneuroses.

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EARLY DIAGNOSIS AND PROPER MANAGEMENT IN CERVICAL CANCER

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The most definite fact known regarding cancer is that with modern methods of treatment a reasonable hope of cure is absolutely dependent on an early diagnosis. It is a source of great satisfaction that many thousands of men and women are living in the United States today who were treated for cancer more than five years ago. On the other side of the ledger is the depressing realization that these thousands represent scarcely one fourth of the total number treated. The explanation for this relatively small salvage lies principally in the fact that the majority of persons seek treatment only after the disease is well advanced. There can be no doubt of this explanation, for there is ample proof of the relative hopelessness of the disease when it is advanced and the good results obtainable when it is early, in the published reports of the world. By way of illustration, the figures from the University of California Hospital on cancer of the uterine cervix are entirely representative (table 1). They show that better than one half of the patients with early lesions survived for more than five years while less than one fifth of the women with advanced growths survived the five year period.

TABLE 1.—*Five Year Survival Rates: 432 Primary Carcinomas of the Cervix at University of California Hospital (1916-Dec. 31, 1935)*

Stage		Cases	Percentage	Number Surviving 5+ Years	Percentage	
1	Early	46	28.4	37	80.4	55.2
2		77		31	40.3	
3	Advanced	211	71.6	50	23.2	17.5
4		98		4	4.1	
		432		122	28.2	

These figures also show that two thirds of the women seeking treatment for cervical cancer had advanced growths. It seems clear, then, that late diagnosis is the chief limiting factor in achieving significant improvement in results, and the most important clinical problem regarding cancer today is making earlier diagnoses.

Having considered briefly the importance of early diagnosis, I shall turn my attention to the methods of diagnosis and the proper management of cervical cancer. The first factor involved in making an early diagnosis is prompt attention to the initial symptoms. Unfortunately, up to the present there has been delay in such attention in the majority of cases. The delay has usually been attributable to the patient's ignorance or neglect, but too frequently it has been attributable to the physician also. An analysis of the 432 primary five year cases at the University of California revealed that only 29 patients sought medical attention immediately or within two weeks of the appearance of symptoms, while 278 delayed for more than four months. There were 54 instances of delay attributable to the physician, as

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From the Department of Obstetrics and Gynecology, University of California Hospital.
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well as 58 instances of incorrect diagnosis. The total duration of symptoms for all patients when added up was equivalent to three hundred and eleven years, of which the physician was responsible for 11.1 per cent, or thirty-four years. The final result: an average duration of symptoms of eight and seven-tenths months. Yet prompt recognition of warning symptoms would mean a tremendous improvement in the prognosis, without regard to other factors, such as the anatomic extent of the growth or the form of treatment. The accompanying chart illustrates graphically the five year survival results correlated with the duration of symptoms. It is seen that the earlier the symptoms were recognized (provided not more than six months had elapsed) the higher was the percentage of cure. For example, for those whose symptoms were of two months' duration or less the five year survival was 42.4 per cent, which is in striking contrast with the 28.2 per cent salvage for the whole series.

These facts controvert the idea that when symptoms arise the disease is always advanced and emphasize the value of immediate attention to the warning signs. Table 2 shows that when symptoms were of short duration a much higher proportion of the cases were in the early stage than was the case for the whole series.

As to the patient herself, the occasion for delay is usually ignorance of the significance of bleeding, which is the initial symptom in the vast majority of cases (75 per cent in this series). A thin, watery or foul discharge, either coming on initially or representing a change from a mucoid discharge, is the first symptom in a smaller number (15 per cent), while in a few cases (10 per cent) there are no significant symptoms. The bleeding is usually intermittent and of small amount, appearing between the periods often only in response to unusual activity, intercourse or other vaginal manipulation. Patients frequently consider it some abnormality of menstruation and by popular misconception have been led to regard such bleeding as a normal accompaniment of the approaching menopause. When bleeding starts after the menopause it is often spoken of as a return of menstruation. The only remedy for these misconceptions is popular lay education, a subject which cannot be discussed more fully at this time.

Quite within our powers to correct, however, is the physician's part in the picture. Sad indeed is it when we are told by patients that they were not examined

Percentage of patients surviving more than five years whose duration of symptoms was one month or less, two months or less and so on.

when they consulted their physicians on account of bleeding but were informed that "It is only the menopause." There were at least 16 such cases in this series. Of every patient with bleeding, the absolute necessity for vaginal examination and further investigation, if the cause is not immediately clear, cannot be overemphasized. If nothing is found the physician has an excellent opportunity to apprise his patient of the symptoms which demand immediate investigation should they arise at a later date. The word "cancer" need not even be mentioned. This opportunity for individual education is constantly presenting itself to every practitioner who deals with women.

A second possible factor in early diagnosis is periodic examination. Its value has yet to be proved conclusively, but theoretically periodic examination, every six to twelve months during the age of greatest incidence of cervical cancer, say from 35 to 50, would result in the discovery of an occasional early growth. We as physicians should advocate it to our patients much more militantly than we do.

TABLE 2.—*Division of Cases into Stages of Advancement*

	Whole Series			Those Having Had Symptoms for Two Months or Less		
Stage	Cases	Percentage		Cases	Percentage	
1.....	46	10.6	28.4	26	24.5	46.1
2.....	77	17.8		25	23.6	
3.....	211	48.8	71.6	42	39.6	51.9
4.....	98	22.8		13	12.3	
	432			106		

The third important factor is the ability to recognize cervical cancer when we see it, not always an easy task in its early stages. The well developed growth rarely confuses; these lesions are either everting cauliflower masses which are friable and bleed easily on manipulation or they are the ulcerative or indurative type in which one frequently finds a crater lined with grayish white necrotic material. The vaginal fornices are often partially or completely obliterated, and the margins of the growth are hard and lumpy. Occasionally the cervical mucosa remains intact and the form of the cervix is preserved, yet the tissue is hard and fixed. Parametrial induration may or may not be present. Much more difficult to recognize are those lesions which are small and well confined to the cervix, or those which are hidden by a smooth, well preserved external os. The early lesion may appear as a shallow ulcer with a slightly raised firm border, in which case it is difficult to differentiate it from an ordinary erosion; or one may see only an irregular beading of the surface. Touching with an applicator frequently causes bleeding. In case of doubt, the only safe plan is to perform a biopsy, for no man lives who can correctly diagnose every early lesion by inspection with the naked eye alone. In this series there were 18 instances of accidental diagnosis.

Aids in the diagnosis of early carcinomatous changes are Schiller's test and the colposcope. The former is performed by instilling into the vagina a sufficient quantity of modified compound solution of iodine (formula: iodine 1 part, potassium iodide 2 parts, water 300 parts) to cover the cervix completely. After five minutes the solution is sponged out and the cervix reinspected. The normal mucosa stains a dark mahogany; eroded areas fail to stain at all; when carcinoma exists the mucosa appears dead white, and usually there is a distinct, well defined border between the normal and abnormal areas. This test depends on the presence of glycogen in the normal epithelial cells and on its absence in carcinoma cells. When positive, it is very suggestive and is an aid in pointing out areas to be taken for biopsy. When the test gives a negative result the absence of cancer should not be assumed. Occasionally one encounters false positives also. If the limitations of the test are recognized it can be of value, but the results can never be regarded as definitely diagnostic. The colposcope, which is merely an instru-

ment for bringing the surface of the cervix into greater magnification under intense illumination, falls into much the same category. To be of value, this instrument requires great usage in order that one may learn to recognize the abnormal as distinguished from the normal. Here, too, the results can be regarded as suggestive only.

In the final analysis, the most important procedure of all in confirming or excluding a diagnosis of cancer is biopsy. A biopsy is absolutely demanded in every suspicious case. The biopsy is not without its drawbacks, however, and should not be performed indiscriminately. A cut made into a suspicious cervix, which is usually infected as well, occasionally leads to a pelvic cellulitis and even death. We have had such cases. While the matter is as yet unproved, the cut may also open the lymphatics to the spread of cancer. Because of this possibility, if cancer is likely to be present it is best not to perform a biopsy except under conditions which will permit immediate treatment should the diagnosis be confirmed.

Lastly is the problem of correctly interpreting the microscopic picture. Generally the picture is quite clearly cancer or not cancer, but occasionally one encounters a significant degree of epidermization which is confusing and is frequently misdiagnosed cancer. Well defined degrees of epidermization are rather commonly seen in cervical polyps. Thus a pathologist who is familiar with the varying pictures found in the cervix is essential if correct diagnoses are to be arrived at.

TABLE 3.—*Previous Treatment in Stage 5 Cases*

	5+ Years Survival	Died in Less Than 5 Years
Panhysterectomy for cancer (there is ample evidence that ordinary panhysterectomy is rarely indicated in this disease)	1 (+ radium)	19
Supravaginal hysterectomy for cancer (nothing could be more ridiculous)	2 (+ radium)	3
Vaginal hysterectomy (only the radical type deserves consideration)	1 (later died of recurrence)	5
Hysterectomy, type unknown	0	3
Cervical resection (mistaken diagnosis)	2	5
Radium (grossly inadequate dosage)	1	16
Miscellaneous	1	1
Totals	8	52

In my opinion, cancer should be regarded as a special disease and its management should be entrusted to those who are properly equipped in education, experience and physical facilities or to institutions dedicated to this end. A combination of high voltage roentgen therapy and radium therapy is the treatment of choice in the vast majority of cases, yet it is rarely possible to provide proper radiation or adequate surgery casually. Some of the results of casual treatment culled from our group of stage 5 or recurrent cases are shown in table 3.

It seems clear that cervical cancer, in fact cancer in general, presents a specialized problem. The results are not good at best, and when the treatment is incomplete or poorly conceived the results are terribly poor. Patients deserve the best chance of cure that modern methods can offer, and this chance is available to them only when they can have the advantage of the best knowledge and the best equipment. Rarely is the general practitioner so equipped, and often this is true of the gynecologist also. It becomes a matter of conscience as to whether a physician is or is not properly qualified.

Clinical diagnosis, on the other hand, is every man's problem, and I am convinced that much can be done to promote earlier and more accurate diagnoses. If results in this disease are to be improved, the lesson is this: 1. Every physician must be keenly aware of the possible significance of bleeding or abnormal discharge, particularly when it arises between periods or after the menopause. When such symptoms appear, a vaginal examination including inspection of the cervix is imperative; biopsy is indicated if the appearance of the cervix is not clearly innocent. When a suspicion of cancer has proved groundless, a warning of significant symptoms should be given. 2. Every physician should encourage periodic pelvic examination during the years of greatest cancer incidence. 3. Every physician should see that a biopsy is taken of all suspicious lesions of the cervix, preferably under circumstances which will permit immediate treatment should cancer prove to be present. 4. Every physician should see that patients with cancer get the benefit of the best facilities and knowledge in treatment.

ABSTRACT OF DISCUSSION

DR. RALPH E. CAMPBELL, Madison, Wis.: Dr. Morton has published several reports relative to carcinoma of the cervix which have added significantly to the literature. This report from the University of California Hospital adds another important contribution to the early diagnosis and proper management in cervical carcinoma. Table 1 shows, relative to patients surviving five years after treatment, that it is most important that the cancer of the cervix be seen in its early stages rather than in the advanced stages to obtain satisfactory therapeutic results. The chart shows that patients with long standing symptoms show favorable five year survival figures proportionate to the length of time they have presented symptoms. From the standpoint of both prognosis and treatment these analyses are important. Table 1 and the chart presented real problematic discussions. It would seem that the question of early diagnosis in part depends on when the patient appears before the physician for examination, and this in many instances depends on lay education. Too frequently women ignore such symptoms as a vaginal discharge and irregular bleeding. This may be due to ignorance or ill advice from other women. Some women fail to appear for examination because of the fear of cancer, not realizing that the disease is curable. It has been common thought with women that irregular bleeding near the menopause is a normal accompaniment of this change. Occasionally women believe that postmenopausal bleeding is the reappearance of the menstrual function and also attribute no significance to increased vaginal secretions. Unfortunately, some physicians play a part in giving these erroneous ideas to their patients; they may further incriminate themselves by omitting a pelvic examination or by performing an incomplete pelvic examination without speculum visualization. At the same time medical treatment, such as ergot or other preparations, may be instituted which is hazardous from the standpoint of the patient. The foregoing emphasizes the importance of both lay education and postgraduate medical education. The Federated Women's Clubs have accomplished a great deal through their recent lay education project on cancer. In a lay program it should be emphasized that all important are examinations of women at least once or twice a year during the period of sexual activity or child bearing age. This will lead to the detection of irritative lesions and their eradication, which is most important in the prophylaxis of cancer as well as the early diagnosis and treatment of this disease. There is no substitute for the biopsy in the diagnosis of cancer of the cervix.

DR. GEORGE GRAY WARD, New York: There is no question that failure to investigate all cases of bleeding in women, however trivial, has much to do with the fact that so many cases of cancer go far too long before they come to adequate treatment. This carelessness may be largely put down to the fact that biopsy is not resorted to as frequently as it should be. I should like to call attention to the frequency of carcinoma

associated with fibroids. As a result of that condition a great many women have been subjected to a supravaginal hysterectomy without, first, adequate investigation as to the nature of the condition that may be present in the cervix. Often an erosion which may be a carcinoma is simply regarded as an erosion, and a supravaginal hysterectomy is done; later carcinoma develops in the stump of the cervix. Stump cancer is a frequent condition. In my clinic at the Woman's Hospital in New York, in some 900 cases of carcinoma of the cervix, we have had 6.8 per cent cases of stump cancer. Some of those cases had occurred within the first year, and undoubtedly the carcinoma was present at the time of the hysterectomy that had been done elsewhere. The average of stump carcinoma is as high as 4 per cent, as has been shown by a number of workers. If a hysterectomy is to be done for a fibroid uterus, if supravaginal hysterectomy is considered, the cervix first should be carefully investigated, and, if necessary, a biopsy taken; if not, the cervix certainly should be watched by periodic examination. The results that have been obtained in the treating of stump cancer are fully as good as those in the average run of cases. We have been able to save about 40 per cent of patients with carcinoma of the stump.

Dr. John J. Gilbride, Philadelphia: When there is any suspicion of the presence of cancer of the uterus, the use of the curet is definitely contraindicated. A biopsy should be performed. Through the courtesy of others I am able to present these postmortem observations. Of 12 cases at autopsy local sepsis was present in 11, gross hemorrhage 4, rectovaginal fistula 2, vesicovaginal fistula 2, cancer nodules in the rectovaginal septum 2, unilateral pyelitis 2, bilateral pyelitis 2, unilateral ureteral obstruction 2, bilateral ureteral obstruction 2, right unilateral hydronephrosis 1.

Dr. Emil Novak, Baltimore: While recent years have seen some improvement in the results of radiotherapy, there are many who feel that we are approaching the limit of what may be expected from this method of treatment. For the present our chief hope of increasing the salvage rate in uterine cancer must lie in bringing to treatment a larger proportion of early cases. And when we speak of early cases we need not necessarily refer to the very early cases concerning which pathologists have had so much discussion, such as those of so-called preinvasive cancer. We would all be grateful enough for a substantially larger proportion of comparatively small, often obvious, and usually favorable cases in which, for example, the cancer is limited to an area of only a centimeter or so on one of the cervical lips. If a large proportion of our cases were of this sort, the statistics of cancer cure would be immeasurably improved. The work of such organizations as the American Society for the Control of Cancer is of the greatest importance, but the individual physician can and should carry on in his own practice an educational campaign of his own. Moreover, in our efforts to educate the public we should not forget that our own skirts are not altogether clean. There are few doctors so ignorant that they do not know that abnormal bleeding or discharge may mean cancer, and the delays chargeable to medical men are more commonly due to lack of thoroughness or to a peculiar apathetic detachment which allows the patient's diagnostic problem to drift along until it is too late. The physician should look on a suggestive case almost as if he were dealing with an acute disease, and he should not be content until the problem is settled decisively, as it can be in every case. If special methods of study, such as biopsy and microscopic examination, are necessary, as they so commonly are, he should not be satisfied with casually suggesting these to the patient, but he should put the full force of his influence into seeing that his recommendations are carried out. There are few women who will not take the proper steps if the importance of the problem is properly and tactfully presented. It is especially the early favorable cases which need this intensive approach, but in this group the rewards are apt to be large. Biopsy and microscopic examination constitute the sine qua non in the diagnosis of doubtful cases. Such adjuncts as colposcopy and the Schiller test I believe to be of only limited value. Such a test cannot possibly in itself make the diagnosis, and no sensible general practitioner would wish to assume the responsibility of deciding such an important question unless more accurate methods are utilized. The greatest contribution he can make is to be on the alert for cases which on the basis of symptoms or examination are at least suggestive, and to see that the patient receives proper diagnosis and treatment.

Dr. Charles Edwin Galloway, Evanston, Ill.: We owe a responsibility to our patients, and I feel free to treat my clientele in the same manner in which our dentists treat theirs. To all women over the age of 40 for whom I have been responsible once or twice either in an obstetric manner or otherwise I send a notice every six months reminding them that they are due for a pelvic examination. This is done with their consent only and after a personal interview at their last visit in the office. In that manner we shall better serve our clientele because they need just that much reminder that they must allow us to visualize the cervix every so often during the period when it is apt to produce a carcinoma. I would stress what Dr. Novak has said about the Schiller test, and that is that it is only an aid, but it is a very good aid and we as gynecologists should use it routinely.

Dr. E. H. Kloman, Baltimore: The few words I add will not make me popular with the general surgeon who insists on doing gynecologic operations. If the general surgeon is going to do this special line of work, he might fit himself better and be completely efficient in handling cases of cancer of the uterus. Men doing general surgery do amputations of the cervix and supravaginal hysterectomies when other operations might be indicated. They fail to do biopsies and sometimes do not seem to realize that radium is better than surgery in cancer of the cervix. I do not say this in a spirit of severe criticism, but all of us see cancers treated by the general surgeon that might have been handled in a manner greatly to the patient's advantage if the particular man had better knowledge of gynecologic conditions.

THE INFLUENCE OF RADIATION ON LONGEVITY IN CANCER OF THE BREAST

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LOS ANGELES

In this paper I am presenting my experiences relative to the effect of radiation used alone or with surgery in cancer of the breast over a twelve year period from and including the years 1924 and 1935. There were 857 cases in all categories; of these, 803 have been traced—a follow-up of 94 per cent. Those patients who were not located are classed as lost but are not deducted; nor have deductions been made for those dying of intercurrent disease, as there is no way of ascertaining whether they might not have died of cancer had they lived.

Since the Los Angeles Tumor Institute was originally a radiologic clinic, a preponderance of the patients in the early years were treated radiologically. Open incisional biopsy was frowned on and aspiration biopsy had not been perfected, so that diagnosis was based on clinical observations. When a fixed tumor is present of where cutaneous attachment and ulceration are associated with enlarged axillary and supraclavicular nodes, the diagnosis is not in doubt, but when only a small movable lump is found in a woman less than 40 there may be an error in from 15 to 25 per cent of diagnoses made, as Pack [1] points out. However, some patients with minimum manifestations were traced for ten or more years to death, and the clinical diagnosis was verified by the presence of visceral and bony metastasis.

From the Los Angeles Tumor Institute.
Read before the Section on Radiology at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 6, 1941.

1. Pack, G. T.: Treatment of Cancer and Allied Diseases, New York, Paul B. Hoeber, Inc., 1940.

The technic and dosage of radiation changed much in the twelve year period. What was considered adequate in the early years, when little was known about tissue dosage, protraction and timing, is now known to be greatly below requirements for complete destruction of the cells. In the preoperative group the factors

TABLE 1.—*Group 1: Operable (Sixty-Three Patients)*

Type of Treatment*	Total Patients	Lost	Dead	Five Year Survivals	Died of Cancer Later	
					Number	Years
X O	24	1	7	16 (67%)	3	12, 16, 17
X N	11	0	4	7 (67%)	4	6, 6, 8, 10
X	28	1	14	13 (46%)	7	6, 6, 8, 9, 9, 15, 15

* Under type of treatment in the tables X O indicates preoperative roentgen therapy and operation; X N, roentgen therapy and radium needles interstitially, and X, roentgen therapy alone.

were as follows: 200 kilovolts, 4 milliamperes, 0.5 mm. of copper + 1 mm. of aluminum, 50 cm. distance, with a treatment time of thirty minutes daily to one area only. The areas treated were the breast, the axilla and the supraclavicular region. According to our present measurements, the dose to each area was 300 roentgens at a sitting, and since each one was treated three or four times the total dose was 900 to 1,200 roentgens, which resulted in well defined erythema and tanning. The patients going to operation were operated on in six weeks, while those treated radiologically had the treatment repeated two or three times at intervals of three months. The present procedure is to give 1,600 to 2,000 roentgens, measured in air, over each of four areas; two to the breast tangentially, one in the axilla and another over the supraclavicular region; each area is given 100 roentgens daily. The treatment is completed in about three weeks. After a waiting period of from eight to twelve weeks, when the reaction has subsided, a radical mastectomy is undertaken. This allows the full radiation effect to take place and permits primary healing in the majority of patients. The operation is done with the diathermy knife. Patients who are not to be operated on may have more radiation later, if needed, but the dosage administered is based on individual requirements.

In the postoperative series, the technic over the axilla and supraclavicular areas is the same as in the preoperative group, with a dosage of 900 to 1,200 roentgens for each area. Over the operative field low voltage

TABLE 2.—*Group 2: Operable (One Hundred and Twenty Patients)*

Type of Treatment	Total Patients	Lost	Died Before 5 Years	Living 5 Years or Longer	Died of Cancer After 5 Years	
					Number	Years
X O	(a) 30	1	10	19 (63%)	1	7
	(b) 22	1	12	9 (39%)*	5	6, 7, 8, 9, 10
	52	2	22	28 (54%)†		
X N	37	3	9	15 (55.5%)	5	6, 6, 6, 7, 8
X	40	4	26	10 (29%)	5	6, 6, 6, 10, 10

* Three patients living with cancer.
† 25 (47%) free from cancer.

is given, since there is no need for any deep seated effects. The factors are as follows: 100 kilovolts, 5 milliamperes, 0.25 mm. of copper + 1 mm. of aluminum, 30 cm. distance. The operative field is divided into different areas and one area is treated daily. It receives 350 roentgens, which is repeated in four days, for a total of 700 roentgens, resulting in well defined erythema and tanning. This is repeated in from four to six weeks.

The technic used in interstitial irradiation is that given by Keynes [2] and has been described by me [3] elsewhere.

CLASSIFICATION OF GROUPS

The patients treated were divided into the following groups:

Group 1. Operable (63 cases). Tumor movable, with or without cutaneous attachment; no nodes.

Group 2. Operable. Two classes (120 cases): (*a*) Tumor movable, with or without cutaneous attachment; slight ulceration at times; nodes low in axilla. (*b*) Tumor movable or partly fixed; cutaneous attachment; may be ulcerating; nodes large or small high in axilla; suspicious fulness and thickness in the supraclavicular region. This is a questionable operable class.

Group 3. Inoperable (152 cases). Tumor small or large, with or without cutaneous or fascial fixation and ulceration; nodes in axilla, supraclavicular region and/or distant metastasis.

Group 4. Postoperative recurrence (259 cases).

Group 5. Postoperative prophylactic irradiation (263 cases).

GROUP 1: OPERABLE

Although group 1 is small, it reveals the fact that the survival rate for the patients treated by preoperative radiation and interstitial radiation is the same. The rate, however, is less than the conventional rate of

TABLE 3.—*Group 3: Inoperable (One Hundred and Fifty-Two Patients)*

Type of Treatment	Total Patients	Lost	Dead Before 5 Years	Lived 5 Years or Longer
X N	19	1	17	1 (5%)
X	133	8	114	11 (9%)
	152	9	131	12 (9%)

70 to 75 per cent when surgery alone is used. However, 4 of the patients, who later had radical mastectomy, began treatment with the intention of avoiding surgery and waited six to eighteen months before this was done; by this time they already had nodes in the axilla. These cases are left in group 1, as the aim of the study is to see what effect radiation therapy has on permanent recovery. It is known now that whatever benefit accrues from preoperative irradiation is lost if the time between treatment and operation is unduly prolonged.

The survival rate of those treated by roentgen rays alone, being only 46 per cent, is greatly less than that of those treated surgically. Therefore, the necessity for operation in this favorable group should always be stressed. Should there be a contraindication to operation, the use of interstitial radiation should be considered as preferable to roentgen rays alone. It is further emphasized by a follow-up beyond the fifth year that permanence of recovery is maintained to a greater extent in the surgically treated group.

GROUP 2: OPERABLE

The figures in table 2 speak for themselves. The extent of the disease determines the outcome. The *a* patients have a recovery rate approaching those in group 1, and this is maintained up to the tenth year, but in the *b* patients the rate is much lower with

2. Keynes, Geoffrey: The Place of Radium in the Treatment of Cancer of the Breast, Ann. Surg. 104: 619-630 (Oct.) 1937.
3. Meland, O. N.: The Place of Interstitial Irradiation in Cancer of the Breast, Am. J. Roentgenol. 35: 348-358 (March) 1936.

5 dying from cancer after the fifth year. The combined survival rate is 54 per cent. Survival of the needled patients is about the same as that of those having mastectomy, but here the rate is not maintained, as 5 died of cancer up to the eighth year. The patients receiving only roentgen therapy had a survival rate of 25 per cent, with half of the patients dying from cancer before the tenth year. Taking 30 per cent as the accepted five year rate for the surgically treated patients in this group and comparing it to the 47 per cent who were clinically free from cancer, it is our belief that irradiation has increased the rate of survival materially.

GROUP 3: INOPERABLE

No one but the radiologists say anything about patients falling in group 3; still in this series they are almost as numerous as patients falling into the two favorable groups combined. None of these patients were operated on but were treated by radiation only. Under roentgen therapy alone the survival rate was 8 per cent. I do not say that the patients who have survived are free from cancer, but some are without clinical evidence of disease. They are comfortable and able to lead a useful existence. Of those patients treated with interstitial radiation only, 1 of 19 survived five years. Therefore, in this frankly inoperable group roentgen therapy alone disturbs the patient less and gives a greater chance of longevity.

TABLE 4.—*Group 4: Postoperative Recurrent (Two Hundred and Fifty-Nine Patients)*

Total Patients	Lost	Dead Before 5 Years	Lived 5 Years or Longer
259	11	229	29 (11%)

GROUP 4: POSTOPERATIVE RECURRENT

In group 4 again are patients in whom the radiologist is much interested, since the group is made up of surgical failures. It represents the end of the road and most often it falls to the radiologist to make the patients mentally and physically comfortable. The results of treatment are given in table 4.

As a result of careful radiation therapy, 28, or 11 per cent, have lived from five to fifteen years after therapy was begun. This represents a salvage obtained in which 88 per cent of the recurrences took place in the first four years after operation. However, 3 per cent of the recurrences took place in patients from the tenth to the twenty-seventh year after operation. It confirms the Lewis and Rienhoff [4] contention that, no matter how favorable the case or how careful the operation, death from carcinoma may take place years after the conventional five year period of curability has passed. Following up the 28 patients beyond the five year period, I found that 2 died of intercurrent disease, 10 died of cancer from the sixth to the eleventh year after treatment, 4 are living with cancer from the sixth to the tenth year and 12 are living and well, clinically free from cancer, from the sixth to the fifteenth year.

GROUP 5: POSTOPERATIVE PROPHYLACTIC IRRADIATION

Patients falling in group 5 represent a controversial group about whom much discussion has taken place. With the exception of radiologists, who have had a great enough experience and who are in the minority, the consensus, largely surgical, is that postoperative irradiation does not add anything to the five year end results. This view is ably presented by Harrington [5] and Greenough.[6] Since the records are not complete, we are unable to separate the patients into groups 1 and 2, but the combined series gives a survival rate of 39 per cent in which the patients are clinically free from cancer. Except for some of our own patients, this represents the effort of twenty surgeons, some of whom have had extensive experience in surgery of the breast but many of whom operate on only one or two breasts a year. Furthermore, many patients were referred to the institute with a notation on their history that a radical operation had been done, but the pectoral muscles were found to be intact. It is important for one to bear this in mind, since it represents the "average" surgical material seen in any community, when comparing it to the Mayo Clinic or the Harvard Clinic series, in which a definite fixed surgical technic is maintained. Since we have no control group of our own to compare with the groups in which no postoperative irradiation was given, it is difficult to draw any definite conclusions. Comparing our series with Bartlett's [7] carefully worked out series, in which he obtained a five year curability of 31 per cent, our results of 39 per cent show that irradiation adds 8 per cent; or, in comparison to the table compiled by Portmann [8] from the world literature, in which there is a mean average five year survival of 28 per cent, postoperative irradiation in our series shows an 11 per cent improvement.

TABLE 5.—*Group 5: Postoperative Prophylactic Irradiation (Two Hundred and Sixty-Three Patients)*

Total Patients	Lost	Dead	Five Year Survivals
263	23	139	101 (39%)

SURVIVAL RATE IN CASES IN WHICH DEATH OCCURRED WITHIN FIVE YEAR PERIOD

Before the subject is dismissed, it is interesting to see what the survival rate in months is of patients who have died from cancer within the five year period, according to the method of treatment used. Two hundred and thirteen cases fall in this category (table 6).

TABLE 6.—*Survival Rate in Months in Cases of Cancer Deaths Within Five Year Period*

Type of Treatment	Group 1		Group 2		Group 3	
	Cases	Survival, Months	Cases	Survival, Months	Cases	Survival, Months
X	13	40	26	28	114	14
X N	4	28	9	23	17	24
X O	7	35	23	22	0	0

These figures in table 6 refute the charge that is sometimes made that irradiation hastens the fatal outcome, for the patients receiving roentgen therapy alone lived longer than those who had either operation or

4. Lewis, Dean, and Rienhoff, W. F., Jr.: A Study of the Results of Operation for the Cure of Cancer of the Breast, Ann. Surg. **95**: 336-400 (March) 1932.

5. Harrington, S. W.: Carcinoma of the Breast: Surgical Treatment and Results from Ten to Fifteen Years After Radical Amputation, Surg., Gynec. & Obst. **58**: 438-441 (Feb., no. 2A) 1933.

6. Greenough, R. B.: Five Year Cures of Cancer of the Breast at Massachusetts General Hospital, Surg., Gynec. & Obst. **58**: 437 (Feb., no. 2A) 1934.

7. Bartlett, E. I.: The Curability of Cancer of the Breast, West. J. Surg. **41**: 243-254 (May) 1933.

8. Portmann, U. V.: A Comparison of the Results in a Series of Cases of Carcinoma of the Breast Treated by Postoperative Roentgen Therapy for Prophylaxis with Similar Cases in Which Operation Was the Only Treatment, Am. J. Cancer **27**: 1-25 (May) 1936.

radium needles supplemented by roentgen therapy. Both of these manipulative procedures contributed to earlier dissemination. While patients in group 3 receiving interstitial irradiation lived longer than those treated by roentgen rays, the facts are that the roentgen ray group included patients with distant metastases, while those treated by interstitial irradiation had inoperable cancer only because of local and supraclavicular extension.

In most articles presented on cancer of the breast, only the favorable cases are discussed. In other words, the operable patients receive the spotlight. I feel that the problem of cancer of the breast should be considered as a whole rather than from the favorable groups only. It must be realized that there are almost as many patients with inoperable as with operable cancers and that roughly 40 per cent of the operable group result in surgical failures. Education to bring the patient in early must go on, but as long as human nature is what it is, and procrastination continues, radiation plays a dominant part in the treatment of these patients. Further, there are facts that cannot be presented statistically, such as pain relief, growth control and the establishment of a degree of mental tranquility from knowing that something is being done. All this radiation offers and does.

While surgery is and will remain the best procedure to offer the operable groups, the survival period of those patients in whom the tumor has spread from the breast itself will be greatly enhanced by irradiation given either preoperatively or postoperatively. In my experience, preoperative irradiation is preferable to postoperative therapy, as it attacks the cancer cell in its natural surroundings. Excepting those patients who are to be treated exclusively by radiation, the aim of the treatment is not necessarily to sterilize the breast and lymph nodes but to inactivate the most actively growing cells so that the manipulation incident to the operation itself will not result in further dissemination. When our 39 per cent five year recoveries in the postoperative series, made up of both groups 1 and 2, are compared with the combined results of 52 per cent in the group in which preoperative irradiation has been used, the evidence points to the superiority of using irradiation before rather than after operation. The greatest drawbacks to preoperative therapy are due to two factors: first, the waiting period between the cessation of treatment until surgery is done and, second, the fear on the part of the surgeon of delayed healing after operation. Despite these objections, if the end results are improved the method is justifiable. The individual variation of surgical end results is apparently great. In the list compiled by Portmann,[8] the five year results run from 15 to 52 per cent, while in a more recent report issued by the Presbyterian Hospital in New York, surgeons working with the same material have a five year curability of from 6 to 43 per cent. Obviously, some men are cancer surgeons while others are not. The same variability must exist among radiologists. While a competent technician and good equipment are necessary, it requires the careful supervision of a clinician who understands cancer and its mode of spread to get results. I realize that the figures that I have presented are not as high as those submitted by Pfahler,[9] but this may be because of the fact that I have not recognized the importance of the saturation method of therapy.

9. Pfahler, G. E., and Vastine, J. H.: Technic and Results of Irradiation in Carcinoma of the Breast, Am. J. Roentgenol. 33:41-49 (Jan.) 1935.

CONCLUSIONS

When cancer of the breast is considered as a whole and not from the standpoint of the favorable groups, radiation plays a dominant role in its treatment. It contributes to longevity in all groups with the exception of group 1, in which radical removal alone is apparently sufficient. However, in group 2, preoperative irradiation as an adjunct to surgery increases the rate of survival between 15 and 20 per cent. While irradiation alone does not give the results that surgery does, interstitial irradiation approaches it, though permanence of recovery is not maintained after the five year period, as it is when preoperative irradiation and surgery are combined.

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ABSTRACT OF DISCUSSION

DR. U. V. PORTMANN, Cleveland: Dr. Meland has grouped his series according to extent of involvement, which is the proper approach to statistical analysis of the results of different methods of treatment. He has placed patients with "no nodes" involved in group 1. In our experience at the Cleveland Clinic, and according to many reports in the literature, metastases in the axillary lymph nodes from cancer of the breast can be ascertained with certainty in approximately half of the patients subsequently proved to have them, after careful examination of tissues removed from the axilla. In our experience, and that of others, when no axillary metastases are demonstrable, from 80 to 90 per cent of patients survive five years by operation alone. But Dr. Meland finds that only 67 per cent of his group 1 patients having roentgen therapy followed by operations survived five years. Therefore it seems justifiable to conclude that some of his group 1 patients really had unrecognizable metastases; otherwise the survival rate should approximate the average of about 85 per cent. If one is willing to accept a higher surgical curability for patients without microscopic evidences of axillary extension, there is no indication from Dr. Meland's results that preoperative roentgen therapy added to the proportion of five year survivals. Dr. Meland found that exactly the same proportion, that is, 67 per cent, of patients treated by roentgen rays survived as those having preoperative roentgen therapy. It would appear that the radium destroyed the local tumor. However, it also is apparent that some of his group 1 patients had metastases; otherwise the destruction of the breast tumor would have resulted in a higher percentage of survivals. It is obvious from the statistics presented in regard to group 1 patients that the role of roentgen therapy was relatively unimportant. This also is suggested by his experience with roentgen therapy alone, since only 46 per cent survived. It is reasonable to conclude that, since the survival rates in his group 1 and group 2 A patients are the same, preoperative roentgen therapy did not add to the proportion of five year survivals. Fifty-four per cent of his patients in group 2 A and B having axillary metastases and preoperative roentgen therapy survived five years. According to our experience and reports in the literature, about the same proportion of patients having axillary metastases survive that long by operations alone. This also would appear to indicate that the preoperative irradiation did not increase the proportion of survivals.

DR. JOHN E. WIRTH, Baltimore: If I understood correctly, the author said he obtained a 17 to 20 per cent better result by preoperative irradiation. If that is so, I should like to know how he derived those figures and on what they were based.

DR. ORVILLE N. MELAND, Los Angeles: When it comes to the matter of discussing carcinoma of the breast, there is always going to be a difference of opinion. In the group 1 series there were some patients who started with roentgen therapy with the idea of avoiding surgery. As I mentioned, we left them in that group for the simple reason that we wanted to see what roentgen therapy could accomplish. Evidently it did not have any retarding effect, so a number of them who later went to surgery really were in group 2 when they had their operation. As far as the matter of treatment in these cases is concerned, the postoperative and preoperative, the conclusions that one draws from the

literature vary with different individuals. The matter of technic is one of the important factors. The patients mentioned from the Greenough series and the Harrington series were discussed from the point of view that the amount of irradiation was insufficient according to modern standards, which may be true. Answering the other question about the 17 to 20 per cent, it was based on the improvement of average results obtained throughout the country.

EFFECT OF GONADOTROPIC SUBSTANCE ON OVULATION

RESULTS OF THE INTRAMUSCULAR USE OF A PREPARATION OF HIGH POTENCY FROM PREGNANT MARE SERUM

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A gonadotropic substance is one that stimulates the growth and hormonal function of the epithelial elements of the ovary.

Gonadotropic substances have been isolated from various fluids and tissues of the body, such as pregnancy blood serum, spinal fluid, castrate and postmenopausal urine, from the pituitary gland and from the placenta. They have been demonstrated to have two functions: one is stimulation of growth of the follicle and the other is the induction of ovulation and luteinization of the follicle. Gonadotropic substances vary considerably in their ability to stimulate the ovary. Although the characteristic activities have been demonstrated in experimental animals, results obtained with the use of these substances in the human female have not been as satisfactory.[1]

Most of the reports indicate that of the many known gonadotropic substances, the one obtained from pregnant mare serum is probably the most effective in stimulating the human ovary. Reports that ovulation has been induced in the human being have been published.[2] Numerous clinical reports advocate the use of these substances in patients who present sterility problems, in patients with functional bleeding and amenorrhea. A critical survey of these reports leads to the conclusion that, in general, the clinical use of these substances has not been completely satisfactory. Many reasons may account for this. The effectiveness of a gonadotropic substance depends on the induction of ovulation and the maintenance of a normal functioning corpus luteum. It is apparent from the numerous reports that ovulation cannot be induced at will in a given patient. Second, failure of ovulation may not be the primary and essential defect in the endocrine physiology of a given person. Third, the dosage that will always induce ovulation in a given person has not been determined. The dosage requirements are undoubtedly not uniform in a single patient at various times in the cycle, and certainly they would not be uniform in different persons. Fourth, it is possible that failure may at times result from the injudicious choice of the route of administration of the substance. Intramuscular injections may be unsatisfactory because of the lack of sufficiently potent preparations. Fifth, it is possible, as recent reports suggest, that the administration of a substance with a synergistic action is necessary to enhance the action of a single gonadotropic substance.[3]

Absolute proof that follicle stimulation, ovulation and luteinization have been produced in the human being by the injection of a gonadotropic substance is difficult to establish. It is essential that microscopic studies of the corpora lutea be made. Exact criteria must be known and accurately applied to determine the age of a given corpus luteum. Even if this is done and the accurately estimated age of a given corpus luteum coincides with the time elapsed between the injection and the surgical removal of the tissue, it is impossible to state with certainty that the medication induced ovulation and luteinization. It is possible only to infer that the ovulation resulted from the medication rather than that it was spontaneously present. Large series of patients must be studied and the corpora lutea must be studied histologically before such inferences could be of unimpeachable value. On the other hand, if the estimated age of the corpus luteum is greater than the time elapsed between injection and operation, it can be stated definitely that the ovulation was not experimentally induced.

Proof of the efficacy of treatment would be more absolute if ovulations could repeatedly be induced during the early and late phases of the menstrual cycle. This is true, since spontaneous ovulations, although they do occur early and late in cycle, are relatively infrequent at these times. Proof could be firmly established by inducing ovulation experimentally in a patient who had ovulated spontaneously and normally shortly before or after treatment. Thus corpora lutea of different ages would exist in the same patient and their respective degrees of development would lend themselves readily to the making of a positive statement that the treatment had produced one of them.

Another aid in the establishment of proof would be the repeated demonstration of superovulation (simultaneous ovulation of more than one follicle) completely beyond the realm of normal probability, both in number and in frequency. Here it rests with the individual author to establish without question of doubt that the multiple corpora lutea are normal and that they are not aberrant corpora, such as luteinized unruptured follicles. This is sometimes extremely difficult. It requires considerable effort and time, since serial section studies of the complete corpora lutea are necessary to permit one to say that ovulation has truly taken place and that an ovum is not imprisoned within. Identification of the stigma or ovulation point is fairly conclusive that ovulation has occurred. In many instances, however, the stigma may have healed and may not be readily discernible.

The fact that ovulation occurs in some patients with functional amenorrhea after treatment with gonadotropic substances does not prove the efficacy of the treatment. These patients are known to ovulate spontaneously. Thus, before claims can be made, one must induce ovulations in a sufficient number of patients to obviate the possibility of coincidence. Ovulation may occur spontaneously also in women during phases of

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1. Hamblen, E. C., and Ross, R. A.: Endocrinology 21:722 (Nov.) 1937.

2. Davis, M. E., and Koff, A. K.: Am. J. Obst. & Gynec. 36:183 (Aug.) 1938. Siegler, S. L., and Fein, M. J., ibid. 38:1021 (Dec.) 1939.

3. Leonard, S. L.: Proc. Soc. Exper. Biol. & Med. 39:812 (April) 1932. Engle, E. T.: Endocrinology 18:513 (July-Aug.) 1934. Evans, H. M., Meyer, Karl, and Simpson, Miriam E.: Am. J. Physiol. 106:141 (March) 1933. Engle, E. T., and Hamburger, C.: Proc. Soc. Exper. Biol. & Med. 33:1531 (June) 1935 (table 1). Buttner, Wilhelm: Arch. f. Gynäk. 163:487, 1937. Mazer, Charles, and Ravetz, Elkin: Am. J. Obst. & Gynec. 41:474 (March) 1941.

abnormal uterine bleeding. Conclusions must be drawn cautiously when ovulation is observed after injections of gonadotropic substances in such patients.

It is necessary that additional, exact, experimental evidence must be accumulated concerning the effectiveness of the gonadotropic substances in the human female before it is feasible to claim that these substances are of clinical value.

per cubic centimeter. One rat unit is the equivalent of 2 international units.[7] In table 1 the varying dosages are shown. The lowest amount given to any patient in the series was 600 rat units. This is comparable to 60 Cartland units,[8] used by Davis and Koff. The dosages ranged up to 5,000 rat units (10,000 international units) in divided doses. The largest single dose was 2,000 rat units.

TABLE 1.—*Treated Group*

Patient	Age	Menstrual History	Pathologic Condition	Injections Hours Before Operation	Gonadotropic Substance, Cole-Saunders Units	Day of Cycle Operated	Corpora Lutea: Of Previous Cycle	Corpora Lutea: Of Current Cycle	Stage	Endometrium	Ovulation Induced
1	47	Normal	Residues	43	2,000	1	2	0	Degenerate	Menstruating	No
2	22	Normal	Fibroids	17	600	2	1	..	Degenerate	Menstruating	No
3	45	Menorrhagia	Fibroids and residues	72 48 24	600 200 200	4	1	0	Degenerate	Menstruating, repair	No
4	37	Normal	Fibroids and residues	312	1,200	5	1	0	Degenerate	Repair	No
5	39	Normal	Residues	20	800	9	1	2	Young	Early secretory	No
6	29	Normal	Fibroids	41 26	2,000 2,000	9	1	0	Degenerate	Proliferative	No
7	39	Normal	Fibroids	23	600	11	1	0	Degenerate	Proliferative	No
8	38	Menorrhagia	Fibroids	65	1,800	11	1	0	Degenerate	Proliferative	No
9	30	Normal	Fibroids and residues	21	2,000	12	1	0	Degenerate	Proliferative	No
10	43	Metrorrhagia	Fibroids	43 20	1,600 2,000	13	1	0	Degenerate	Proliferative	No
11	40	Normal	Residues	66 22	2,000 2,000	14	1	0	Degenerate	Proliferative	No
12	38	Metrorrhagia	Fibroids and residues	45 22	1,600 2,000	14	..	2	Bloom	Secretory	No
13	40	Normal	Fibroids	42	1,800	15	..	1	Young	Secretory	No
14	37	Menorrhagia and metrorrhagia	Fibroids	25	2,000	15	..	2	Vascularization	Secretory	No
15	33	Normal	Endometriosis	96 72 24	1,000 1,000 2,000	18	..	1	Young	Secretory	?
16	32	Normal	Fibroids and residues	96 72 48	1,000 2,000 2,000	21	..	1	Bloom	Secretory	No
17	32	Metrorrhagia and menorrhagia	Residues	120 96 72	1,000 2,000 2,000	21	..	1	Bloom	Secretory	No
18	44	Menorrhagia	Fibroids	312 288 264 240	1,000 1,000 1,000 2,000	21	..	2	Bloom	Secretory	?
19	38	Normal	Fibroids and residues	45 27	1,000 2,000	21	..	1	Bloom	Secretory	No
20	37	Normal	Fibroids and residues	306 282 258 170	1,000 1,000 1,000 2,000	21	..	0	.....	Proliferative	No
21	44	Menorrhagia	Fibroids	168 144 120	1,000 2,000 2,000	27	..	1	Beginning regression	Secretory and menstruation	No
22	35	Menorrhagia	Fibroids	68	600	28	..	1	Beginning regression	Secretory and involution	No
23	39	Normal	Fibroids	96 72 48 25	1,000 1,000 1,000 2,000	34	..	1	Bloom	Secretory	No
24	28	Normal	Fibroids	69	600	Pregnant 6 weeks	..	1	Pregnant	Decidual	No

This work was undertaken in an attempt to induce ovulation by using a more highly concentrated pregnant mare serum substance intramuscularly.

MATERIAL AND METHODS

The gonadotropic substance used in this experiment was obtained from pregnant mare serum by the Cole and Hart [4] method of extraction and is known commercially as "gonadin." [5] Two concentrations of the substance were used. One solution contained 200 rat units [6] per cubic centimeter and the other 1,000 rat units

Intramuscular injections were used throughout. Davis and Koff stated they obtained much better results by intravenous injections. This work, therefore, is not identical to theirs, nor should the results presented here be confused in any way with the results of intravenous therapy.

The patients chosen were all to be operated on so that the ovarian tissues and the associated endometrial tissues might be available for microscopic study. The menstrual cycles were for the most part normal or near normal. However, a few patients who had abnormal

4. Cole, H. H., and Hart, G. H.: Am. J. Physiol. **93**: 57 (May) 1930.

5. The gonadotropic substance used was supplied by the Cutter Laboratories, Berkeley, Calif.

6. Cole, H. H., and Saunders, F. J.: Endocrinology **19**: 199 (March-April) 1935.

7. Cole, H. H.; Pencharz, R. I., and Goss, Harold: Endocrinology **27**: 548 (Oct.) 1940.

8. Cartland, G. F., and Nelson, J. W.: J. Biol. Chem. **119**: 59 (June) 1937.

cycles were chosen in an effort to induce ovulation in the presence of abnormal uterine bleeding. Fifteen patients had normal cycles, 5 had menorrhagia, 2 had menorrhagia and metrorrhagia and 2 had metrorrhagia. One of the 15 patients with normal cycles was six weeks pregnant when she was operated on.

Fig. 1.—Patient 5, operated on on the ninth day of her menstrual cycle, was given 800 rat units of gonadotropic substance twenty hours preoperatively. The corpus luteum, which is partly vascularized, is older than 20 hours.

It is apparent that these patients were operated on for pelvic disorders (table 1). It has been demonstrated, however, that pelvic lesions are frequently present in association with normal ovarian and endometrial functions.[9] It is apparent, then, that ovulation, the development of the corpus luteum and the endometrial responses to ovarian stimulation may be normal in conditions similar to those for which the patients of this report were operated on. Therefore, while the patients studied were not ideally suited to a study of normal function, they were sufficiently suitable to warrant certain conclusions.

It is difficult to control experimental work of this type in the human being. In this work a control group of patients was studied. These patients were chosen because they were near the same age, had similar pelvic disorders and were operated on on the corresponding days of the cycles as patients of the treated group.

TREATED GROUP

Arrangement of the treated patients included in this report into subgroups is desirable for the convenience of study. The first group is composed of 12 patients operated on from the first to the fourteenth day of the menstrual cycle inclusive. The second such group comprises 11 patients operated on from the fifteenth to the thirty-fourth day of the cycle. One patient was operated on during pregnancy.

9. Sammartino, R., and Gandolfo Herrera, R.: Rev. méd. latino-am. **25**:375 (Jan.) 1940. Brewer, J. I., and Jones, H. O.: Am. J. Obst. & Gynec. **41**:733 (May) 1941.

SUBGROUP 1.—Two of the 12 patients operated on in the first half of their menstrual cycle possessed corpora lutea of the current cycle (table 1). All had regressing corpora lutea of the previous cycle. Patient 5, operated on on the ninth day of her cycle, had twin corpora lutea of the current cycle. The age of these corpora lutea is estimated at more than 24 hours and less than 48 hours (fig. 1). A single intramuscular injection of 800 rat units of gonadotropic substance was given twenty hours before operation. Since the age of the corpora lutea, as determined by histologic and cytologic methods, is greater than the time elapsed between the injection and the operation, it is obvious that ovulation in this patient had occurred prior to and was not due to the use of the gonadotropic substance. The endometrium was early secretory in character and was consistent with the degree of development of the associated corpora lutea. That ovulation may occur this early in the menstrual cycle is evidenced by a study of the control group as well as by a study of young human embryo material.

Advocates of the theory that the follicular phase of a given menstrual cycle may vary greatly in length but that the corpus luteum phase is more or less definitely fourteen days in length have support in the findings of this patient. Ovulation must have occurred on the seventh or eighth day of the cycle. If the corpus luteum phase is fourteen days, the onset of menstruation in this patient would be expected on the twentieth or twenty-first day of the current cycle. The menstrual history given by the patient was that she menstruated every twenty-one days for three days. Thus the findings and history correlate very well.

Fig. 2.—Patient 12, operated on on the fourteenth day of her cycle, had two identical corpora lutea in the stage of bloom. The age is greater than 45 hours, which corresponds to the time preoperatively that the gonadotropic substance was given.

Patient 12 was operated on on the fourteenth day of her menstrual cycle. Two identical corpora lutea were present (fig. 2). The degree of development of the corpora lutea indicates that ovulation had occurred before the injections were given, since the gonadotropic substance (1,000 and 2,000 rat units) was given forty-

five and twenty-two hours preoperatively respectively. The endometrium is developed to a degree consistent with that of the corpora lutea.

In none of the other 10 patients was there any evidence of recent or induced ovulation. Patient 1 had two identical regressing corpora lutea of the previous cycle.

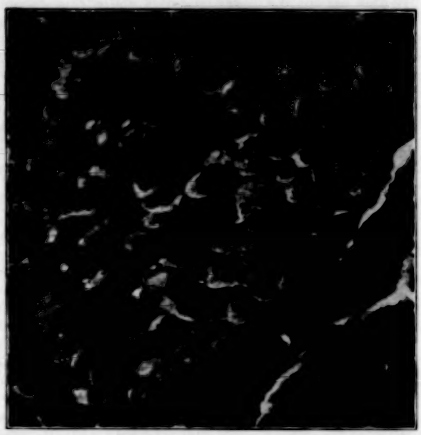

Fig. 3.—Patient 13, operated on on the fifteenth day of her cycle, possessed a corpus luteum in the bloom stage. The injection of the gonadotropic substance could not have induced ovulation, since it was given only forty-two hours before operation.

It is worthy of note that in 3 patients in this group (9, 10 and 11), operated on on the twelfth, thirteenth and fourteenth days respectively, ovulation had not occurred, either spontaneously or as the result of the intramuscular use of a gonadotropic substance.

SUBGROUP 2.—Of the 11 patients comprising this group 1 (20) had not ovulated spontaneously or as a result of the injections when she was operated on on the twenty-first day of her menstrual cycle (table 1). The other 10 patients possessed corpora lutea of the current cycle in various degrees of development.

Patient 13 was operated on on the fifteenth day of her cycle. The corpus luteum was older than the forty-two hours which elapsed between the injection and the operation (fig. 3).

Patient 14 had two identical corpora lutea which were in the vascularization stage and were obviously more than 25 hours old. Two thousand rat units of gonadotropic substance had been given twenty-five hours before the operation.

The corpus luteum of patient 15 was 3 to 4 days old, and, since the first injection of 1,000 rat units of gonadotropic substance was given ninety-six hours before the operation, it is probable that ovulation occurred within that span of ninety-six hours. That the injections induced the ovulation cannot be claimed or denied, since there is no possible way of proving it one way or the other. Ovulation could be expected to occur normally at this time in the cycle.

Patient 16, operated on on the twenty-first day of her cycle, had a corpus luteum in the stage of bloom that was considerably older than 96 hours, which corresponds with the time before operation that the first injection was given.

Patient 17 had a corpus luteum in the bloom stage and an endometrium that showed beginning involution. The latter is indicative of the onset of menstruation within two or three days. Thus it does not appear possible that ovulation had occurred within one hundred and twenty hours (five days) prior to the operation. The injected gonadotropic substance does not seem to have played a part in the process of ovulation in this patient.

In patient 18 injections of the gonadotropic substance were begun three hundred and twelve hours (thirteen days) prior to the operation, which was performed on the twenty-first day of her cycle. A study of the two identical corpora lutea indicated that ovulation had occurred within this thirteen day span. Again, however, one cannot claim or deny the effect of the injected material on the ovaries.

Patient 19 was operated on on the twenty-first day of her cycle. The corpus luteum was in the stage of bloom and the endometrium was secretory in character. The age of the corpus luteum is greater than the forty-five hours elapsing between the first injection and the operation. This fact indicates that ovulation did not result from the medication.

The corpus luteum of patient 21, operated on on the twenty-seventh day of her cycle, was in the late bloom stage and the endometrium showed involution and early menstrual changes. Ovulation in this patient had undoubtedly occurred more than one hundred and sixty-eight hours (seven days) prior to the operation.

Patient 22 was operated on on the twenty-eighth day of her cycle. The corpus luteum was in the late bloom stage. The endometrium had undergone involution.

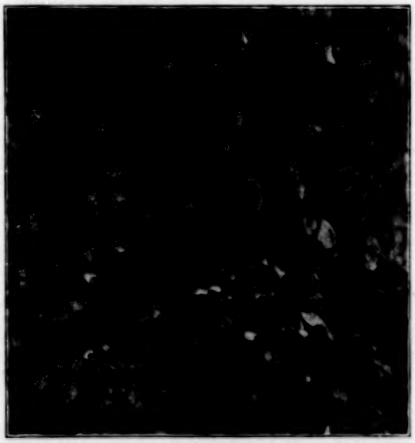

Fig. 4.—The corpus luteum removed from patient 23 on the thirty-fourth day of the cycle was in the stage of bloom. It is not probable that the gonadotropic substance given ninety-six hours prior to operation had induced ovulation in this instance.

Since the gonadotropic substance was given only sixty-eight hours prior to operation, it is obvious that it played no part in the process of ovulation in this patient.

Patient 23 had menstrual cycles of twenty-eight days' duration, but the current cycle had lasted thirty-four days when she was operated on. Injections of the

gonadotropic substance were begun ninety-six hours prior to operation. The corpus luteum was in the bloom stage (fig. 4) and the endometrium was correspondingly developed. It is not probable that the gonadotropic substance was important in inducing ovulation in this patient.

Patient 24 was operated on at six weeks of pregnancy. No new corpora lutea were present. A single injection of 600 rat units of the gonadotropic substance was given sixty-nine hours before operation.

In most instances there was increased vascularity and, in some instances, hemorrhages in the ovarian tissues, particularly about the larger follicles but also about the corpora lutea. Similar hemorrhaging has been reported to occur in the ovaries of the human being and the monkey following gonadotropic therapy. Increased follicle atresia and degenerated changes in follicles were not observed.

TABLE 2.—*Control Group*

Patient	Age	Menstrual History	Day of Cycle Operated	Corpora Lutea of Current Cycle	Stage	Endometrium	Pathology
1	26	Normal	1	0	.....	Menstruating	Salpingitis
2	41	Normal	2	0	.....	Menstruating	Fibroids
3	45	Normal	4	0	.....	Menstruating	Fibroids and residues
4	45	Normal	9	0	.....	Proliferative	Fibroids and adenomyosis
5	46	Normal	11	0	.....	Proliferative	None
6	38	Slight menorrhagia	11	1	Young	Secretory	Fibroids
7	32	Normal	12	0	.....	Proliferative	Fibroids
8	37	Normal	13	1	Young	Secretory	Slight residues
9	40	Normal	14	1	Young	Secretory	None
10	37	Normal	14	1	Young	Secretory	Fibroids
11	40	Normal	15	2	Young	Secretory	Fibroids
12	35	Normal	15	1	Young	Secretory	Endometriosis and fibroids
13	46	Normal	18	1	Vascularization	Secretory	Fibroids
14	40	Normal	21	1	Bloom	Secretory	Fibroids
15	42	Normal	21	1	Bloom	Secretory	Fibroids
16	37	Normal	21	1	Bloom	Secretory	Fibroids
17	35	Menorrhagia	21	1	Bloom	Secretory	Fibroids and endometriosis
18	34	Normal	21	1	Vascularization	Secretory	Fibroids
19	46	Menorrhagia	27	1	Bloom	Secretory	Fibroids
20	34	Normal	28	1	Degenerative bloom	Beginning menstruation	Fibroids and residues
21	40	Normal	32	1	Bloom	Secretory	Fibroids, follicular cyst
22	41	Normal	39	1	Vascularization	Secretory	Fibroids

CONTROL GROUP

The control group comprises 22 patients whose ages, menstrual histories and pelvic disorders approximate those of the experimental group as closely as possible (table 2). Ten of these patients were operated on on or before the fourteenth day of their menstrual cycle. Two patients (2 and 5) had twin corpora lutea in the regression phase that were no doubt formed in the preceding cycle. They were operated on on the second and eleventh days, respectively. One patient (6) operated on on the eleventh day had a young corpus luteum whose degree of development indicated that ovulation had occurred on the ninth or the tenth day. Three other patients on the thirteenth and fourteenth cyclic days possessed young corpora lutea.

All 12 patients operated on on or after the fifteenth cyclic day had normal corpora lutea. One patient (22) was operated on on the thirty-ninth day of her cycle. In this patient the development of the corpus luteum, which was in the vascularization stage, indicated that ovulation had occurred spontaneously about the thirtieth day.

COMMENT

In the treated group of 24 patients, 13 possessed corpora lutea of the current cycle. This number includes the 1 patient who was pregnant and who possessed a normal corpus luteum of pregnancy. A microscopic study of the corpora lutea of 11 of these 13 patients indicates definitely that ovulation could not have occurred as a result of the intramuscular injection of the gonadotropic substance. The estimation of the ages of the corpora lutea and the duration of time elapsing between the injections and the surgical removal of the corpora lutea were used as the basis for this statement. In 2 instances (patients 15 and 18) ovulation undoubtedly occurred within the time limits noted. This fact alone, however, cannot be construed to mean that the ovulation resulted from the medication. It is most probable that ovulation would have occurred spontaneously in these 2 patients at this time in their cycles regardless of the medication.

In the control group of 22 patients, 16 patients possessed corpora lutea of the current cycle. This compares favorably with the 13 patients with corpora lutea in the treated group. This comparison is significant, since approximately an equal number of patients of each group were operated on in the first and last halves of the menstrual cycle. There was no demonstrable increase in the incidence of ovulation in the treated group. The number of patients studied is too small to permit definite conclusions, but the consistent results merit some value.

Ovulation was not induced in the treated patients either early or late in the cycle. In 2 patients (5 and 12) ovulation had occurred early in the cycle (table 1), but in both the ovulation was spontaneous. In the control group 1 patient (6) had ovulated at a similar early period (table 2). Ovulation relatively late in the cycle was observed in 1 patient of the treated group (23), but here again it was undoubtedly spontaneous. That ovulation does occur late in the cycle is an established fact and is well borne out by the observation on 2 patients (21 and 22) in the control group who ovulated late in the cycle.

The simultaneous induction of ovulation of more than one follicle was not brought about as a result of the therapy. Four patients in this group of 24 treated patients had simultaneous ovulations of two follicles in the current cycle. In only 1 patient (18) did the bare possibility exist that the gonadotropic substance induced the ovulation. This single instance cannot be considered too strongly in an evaluation of the effectiveness of the treatment. In 1 patient (1) double ovulation had occurred in the preceding cycle. In no instance was superovulation induced beyond the realm of normal probability. Two simultaneous ovulations were the greatest number observed. In the control group of 22 patients, two identical corpora lutea of the current cycle were present in the ovaries of 1 patient. Double ovulation had occurred during the immediately previous cycle in 2 patients (2 and 5). The similar frequency of

double ovulations in the patients of the control group and the treated group makes it seem likely that the incidence in the treated group was a matter of coincidence rather than a result of treatment.

An attempt failed to induce ovulation before or after spontaneous ovulation. In the ovaries of no patient were there corpora lutea of different ages or degrees of development.

In the control group no patient operated on after the thirteenth day had failed to ovulate spontaneously, whereas in the treated group 1 patient operated on on the thirteenth day, 1 on the fourteenth day and 1 on the twenty-first day had failed to ovulate either spontaneously or as a result of the injected gonadotropic substance. This again is undoubtedly a matter of coincidence and without significance with respect to the treatment received. It cannot be concluded that the treatment in these particular patients prevented ovulation.

Adhering strictly to the criteria and the ideal conditions elaborated on, which are necessary to establish absolute proof that ovulation has been induced in the human being by a ganodotropic substance, we must state that ovulation was not induced in the patients of this report. In no respect can conclusions be drawn from the results of this report concerning the effects of gonadotropic substances administered intravenously as reported in the literature.

Since little is known concerning effective dosages of gonadotropic substances, it is possible that in this work the correct, effective dose was not given at the correct time. This might account for the failure to induce ovulation. It has been stated that large dosages produce luteinization of unruptured follicles but will not induce ovulation. In the specimens of this study luteinization of follicles beyond normal was not present. This suggests that the dosages were not too large.

CONCLUSIONS

1. Intramuscular injections of a pregnant mare serum gonadotropic substance of high potency failed to induce ovulation in 22 of the 24 patients studied. In the other 2 patients it is impossible to prove or disprove that ovulation occurred as a result of the injected substance.

2. Multiple ovulations were not induced.

3. No new ovulation superimposed on spontaneous ovulation was induced.

4. Ovulation occurred more uniformly in the 22 patients of the control group than in the 24 patients of the treated group.

104 South Michigan Avenue.

Yellow Fever.—The first recognized account of yellow fever is that given by Père Jean Baptiste Du Tertre (1667-1671) of the outbreak which he himself witnessed in the island of Gaudeloupe in 1648. A few months later, Diego Lopez De Cogulludo (1688) described an epidemic with similar characteristics in Yucatan. Since Carter (1931) published his epidemiologic and historical study of the place of origin of yellow fever, much has been learned not only of the nature of the disease but of the circumstances attending the outbreak of yellow fever in 1648. These observations are in favor of the view that infection was brought to the West Indies from the West Coast of Africa, either to Barbados or less probably to St. Christopher, whence it spread to Yucatan and to Havana.—Findlay, G. M.: The First Recognized Epidemic of Yellow Fever, *Tr. Roy. Soc. Trop. Med. & Hyg.*, November 1941, page 143.

A COMPARATIVE APPRAISAL OF THREE CONTRACEPTIVE SERVICES

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Obstetricians, gynecologists and public health officers agree that the woman with serious systemic disease who becomes pregnant, when pregnancy constitutes an additional health hazard, contributes heavily to maternal morbidity and mortality. In advising his patients about the prevention of pregnancy, however, the physician is somewhat hampered by the fact that, because of inadequacies in the statistical technics used, much of the published material in the field of contraception has failed to give a reliable comparative evaluation of the effectiveness and acceptability of available methods.[1] In most instances, therefore, physicians have confined their advice on contraception either to blanket advice "not to become pregnant" or to the prescription of the occlusive diaphragm with jelly, a method which has been almost universally prescribed in contraceptive clinics.

In an attempt to learn just how various types of people have been served by existing contraceptive services and to evaluate the relative effectiveness of various contraceptive technics, three studies of contraceptive clinics in different sections of the United States have recently been completed by the Milbank Memorial Fund. One, the Birth Control Clinical Research Bureau (now the Margaret Sanger Research Bureau of the Birth Control Federation of America), is in New York City. The other clinics are both independent of the Birth Control Federation. One, the Cincinnati Maternal Health Clinic, operates under the supervision of the local Academy of Medicine; the other is a referral service in the Spartanburg General Hospital in Spartanburg, S. C., and is a regular clinic of the Spartanburg County Department of Health.

THE RECORDS USED FOR STUDY

The records and methods of study differed slightly for the three clinics, but essentially the same information was available for the families in all three regions. In New York, 991 women from the Bronx who attended the clinic between Jan. 1, 1931 and June 30, 1932 were interviewed in their homes by me between one and two years after their initial contact with the clinic.[1] In Cincinnati, 1,621 women who had attended the clinic in the five years between its inception in November 1929 and Dec. 31, 1934 were interviewed in their homes by a trained nurse in 1935 and 1936.[2] In Spartanburg, detailed records were secured for the first 990 patients attending the clinic, which opened in July 1935.[3] Complete follow-up records were kept as patients returned, while for those who failed to return in 1939 and had not moved away the records were completed by means of home visits.

Each record contained social and economic information and a complete and detailed fertility history for the period between marriage or first coitus and the date of interview. It included the date and type of termination of each pregnancy, information concerning any morbidity associated with it, and data on the use of contraception which preceded it. In New York, medical

From the Milbank Memorial Fund.

1. Stix, Regine K., and Notestein, Frank W.: Controlled Fertility, Baltimore, Williams & Wilkins Company, 1940.
2. Stix, Regine K.: Birth Control in a Midwestern City, Milbank Memorial Fund Quarterly **17**:69 (Jan.), 152 (April), 392 (Oct.) 1939.
3. Stix, Regine K.: Contraceptive Service in Three Areas, Milbank Memorial Fund Quarterly **19**:171 (April), 304 (July) 1941.

information was limited to that elicited for the fertility history. In Cincinnati, each record included a brief medical history and data on the pelvic examination given the patient on her initial clinic visit. In Spartanburg, the method of referral permitted the inclusion of detailed information from the pelvic examination given each patient, the diagnosis made at the referring clinic and the results of laboratory procedures, which included a blood test for syphilis, cervical and urethral smears and a urinalysis.

THE PATIENTS OF THE THREE CLINICS

The patients of the three clinics were very different. The women who attended the Clinical Research Bureau, in New York City, were mainly foreign-born Jewish women from families with moderate incomes. Most of them came to the clinic on their own initiative and paid for the service given them. In Cincinnati, most of the patients were relief recipients or wives of manual workers with small incomes who, because their families were large and the mothers needed to be spared the burden of additional pregnancies, were referred for contraceptive advice by social workers or physicians. The patients selected for study in New York and Cincinnati were all white women; in Spartanburg, however, nearly half were Negroes. The Spartanburg clinic serves women from rural and urban sections of a Southern cotton county. Its patients are sent to the clinic mainly because of illness contraindicating further pregnancy. Those referred during the period of study were the wives of urban manual workers, of sharecroppers and of farm tenants, whose economic status was very low.

The outstanding differences between the patients in the three areas are evident in the reasons for their seeking contraceptive advice. The New York women were concerned about controlling their fertility and were

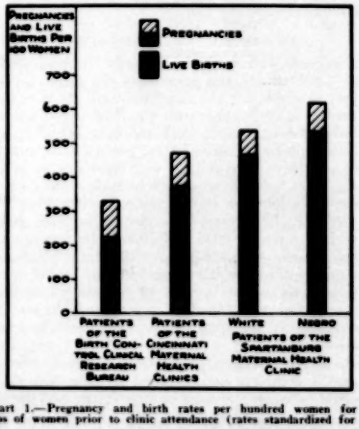

Chart 1.—Pregnancy and birth rates per hundred women for four groups of women prior to clinic attendance (rates standardized for age).

willing to pay for expert contraceptive advice. The women in Cincinnati and Spartanburg were referred for advice mainly because their physical condition or economic circumstances contraindicated further pregnancy, at least temporarily.

The birth and pregnancy rates per hundred women of the three groups of white and one of Negro women, before they attended the clinics, are shown in chart 1.[4] These rates show the usual economic, social and regional differentials. The Spartanburg Negroes had the highest birth and pregnancy rates, the New York clinic patients the lowest.

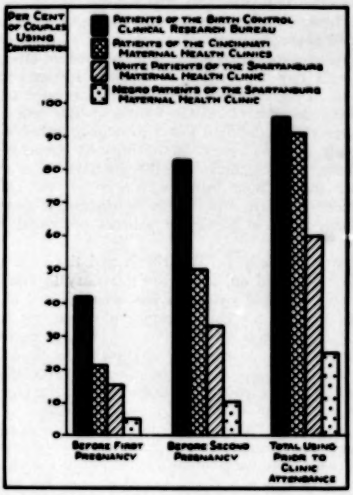

Chart 2.—Proportions of couples in three areas who were using contraception at various periods before the wives attended a birth control clinic.

It is well known that the most important factors associated with group differences in fertility are differences in the prevalence and effectiveness of contraception and in the extent of illegal abortion.[5] In order to determine the influence of these factors in the experience of the women under consideration, it is necessary first to determine what differences there were in the rates at which they conceived during those periods when there was no attempt to use contraception.

The mean number of months of exposure to the risk of pregnancy for each pregnancy experienced is a measure of the average frequency with which women in the three areas conceived.[6] When no attempt was made to use contraception, the New York women conceived much more rapidly than the women in any of the other groups. The Cincinnati women, in turn, conceived more rapidly than either group of Spartanburg women (table 1). The first pregnancies of women in New York who used no contraception were conceived about four months after marriage. For the other groups the interval was nearly twice as long. After the first pregnancy the average period free of pregnancy for each pregnancy experienced was considerably longer for all

4. The rates are standardized to the age distribution of all married women 15-44 years of age in the 1930 census. Women under 15 and over 44 years of age were excluded from the tabulations.

5. Pearl, Raymond: The Natural History of Population, New York, Oxford University Press, 1939, p. 244. Stix and Notestein.[1] Stix.[3]

6. Exposure to the risk of pregnancy covers that period of a woman's life between menarche and menopause during which she is habitually indulging in coitus, as in marriage, and is not pregnant. The mean number of months of exposure was derived by dividing the aggregate number of months of exposure by the number of pregnancies occurring in the exposure. See also Stix and Notestein: Controlled Fertility, appendix III and table 16.

groups. The group differences for the later pregnancies were smaller than for first pregnancies, but the intervals were shortest for the New York group and longest for the Spartanburg women. It is obvious, therefore, that the high pregnancy and birth rates of the Southern women were not associated with "biologically superior" uncontrolled fertility.

The group differences in uncontrolled fertility may be attributed mainly to two factors: the first, a tendency toward prolonged lactation among the Spartanburg women, and the second, the fact that the types of pathologic condition which might be expected to interfere with fertility were least prevalent in New York and most prevalent in Spartanburg. In all three areas the women with evidence of pelvic infection, endocrine disease or syphilis conceived much less rapidly than women free from pathologic conditions.[7]

The differences in the total preclinic fertility of the four groups under discussion could in no way be considered due to differences in "biologic capacity," because the group with the lowest birth rates had the highest uncontrolled fertility and the groups with the highest birth rates the lowest uncontrolled fertility. The differential prevalence and effectiveness of contraception are, therefore, the next factors to be considered.

The periods at which couples first turned to the use of contraception differed in the three areas (chart 2). The New York couples used contraception earlier and more extensively than any of the others. About 85 per cent of them had started to use contraception before the wives became pregnant for the second time. Only 25 per cent of the Negroes had ever used contraception before they attended the maternal health clinic.

During their use of contraception each group of women conceived much less rapidly than when no contraception was used. The average period free from pregnancy for each pregnancy experienced was much longer for each group than the average period when no contraception was used (table 2). For women using contraception from marriage, the mean number of

TABLE 1.—*Mean Number of Months of Exposure per Pregnancy for the Noncontraceptive Experience of Four Groups of Women Prior to Clinic Attendance*

Order of Pregnancy	White Patients of: Clinical Research Bureau (N. Y. C.)	White Patients of: Cincinnati Maternal Health Clinics	White Patients of: Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
	Mean Number of Months of Exposure per Pregnancy			
First pregnancies	4	7	7	8
All later pregnancies	11	13	17	15
	Exposure in Months and Number of Pregnancies			
	Exp. Mo. / No. Preg.	Exp. Mo. / No. Preg.	Exp. Mo. / No. Preg.	Exp. Mo. / No. Preg.
First pregnancies	2,260 / 540	8,051 / 1,121	3,224 / 433	2,676 / 351
All later pregnancies	3,883 / 341	20,357 / 1,563	20,802 / 1,228	18,057 / 1,281

months of exposure for each first accidental pregnancy was eleven months for Negro women, about a year and a half for white women in Cincinnati and Spartanburg, and nearly two and a half years in New York. After the first pregnancy the average period free from pregnancy for each accidental pregnancy experienced ranged from twenty-one months for Negroes to nearly four years for the New York women.

In New York the use of contraception prevented 79 per cent of the pregnancies that would have occurred if the women had used no contraception for an equal period of exposure; in Cincinnati its use reduced the risk of pregnancy by 52 per cent; among the Spartanburg white women the reduction was 47 per cent, and among the Negro women 28 per cent (table 3).

TABLE 2.—*Mean Number of Months of Exposure per Pregnancy for the Experience with Contraceptives of Four Groups of Women Prior to Clinic Attendance*

Order of Pregnancy	White Patients of: Clinical Research Bureau (N. Y. C.)	White Patients of: Cincinnati Maternal Health Clinics	White Patients of: Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
	Mean Number of Months of Exposure per Pregnancy			
First pregnancies	29	17	19	11
All later pregnancies	44	22	28	21
	Exposure in Months and Number of Pregnancies			
	Exp. Mo. / No. Preg.	Exp. Mo. / No. Preg.	Exp. Mo. / No. Preg.	Exp. Mo. / No. Preg.
First pregnancies	5,085 / 174	4,330 / 254	984 / 50	248 / 22
All later pregnancies	63,838 / 1,459	73,655 / 3,379	13,656 / 484	3,693 / 170

These differences in effectiveness were due partly to a variation in the types of contraception used in each area and partly to differences in the effectiveness with which each type was used. Table 4 shows the distribution, in the total exposure with contraceptives, of the types of contraception used by each group, and table 3 the effectiveness with which each of the three most commonly employed methods reduced the risk of pregnancy for each group of women.

The condom and coitus interruptus were the methods most frequently used by the white couples in all three areas. The most frequent choice of the Negro couples was the douche. The New York couples used each contraceptive with much greater effectiveness than any of the other groups.[8] The effectiveness of the condom was high both in Cincinnati and in New York. In Spartanburg, however, its use reduced the risk of pregnancy for the white women by only 50 per cent. Because most of the Spartanburg couples who used condoms found them too expensive to use regularly, the periods of reported condom use include, in many cases, only sporadic use of the contraceptive. The effectiveness of both coitus interruptus and the douche was fairly high for the New York couples but quite low in both Cincinnati and Spartanburg.

In addition to the differences in the prevalence and effectiveness of contraception in the preclinic experience of the four groups of women under consideration, differences in the proportions of their pregnancies terminating in live births had a definite influence on their birth rates (see solid bars in chart 1). Chart 3 shows, for each group of women, the proportions of pregnancies terminating in live births, illegal abortions and other pregnancy wastage.[9] Nearly one fourth of the pregnancies of the New York women were terminated by illegal abortion. Only 8 per cent of the pregnancies of the Cincinnati women and less than 1 per cent of the

7. Stix, Regine K.: The Medical Aspects of Variations in Fertility, Am. J. Obst. & Gynec. 35:571 (April) 1938; Factors Underlying Individual and Group Differences in Uncontrolled Fertility, Milbank Memorial Fund Quarterly 18:239 (July) 1940; Syphilis and Uncontrolled Fertility, Am. J. Obst. & Gynec. 42:296 (Aug.) 1941.

8. Experience with contraceptives, for all the groups under consideration, includes all attempted use of contraception. If some members of a group used a contraceptive only sporadically, their experience was included in the group exposure with that contraceptive. See also Stix and Notestein: Controlled Fertility, p. 121.

9. Stillbirths, spontaneous abortions and therapeutic abortions.

pregnancies of the Spartanburg white women were so terminated. There were almost no illegal abortions among the Negro women; they had a high rate of stillbirth and spontaneous abortion, however, because of the high prevalence of syphilis in the group.[10] For the white women in all three areas the proportion of pregnancies terminating in stillbirths and spontaneous abortions ranged between 8 and 12 per cent. For the Negro women it was 16 per cent.

This analysis of the factors associated with the differences in the preclinic fertility of four groups of birth control clinic patients shows the results of differences in the attitudes of these women toward the problem of controlling their fertility. Such attitudes should determine to a great extent the policies of the clinics from which they seek advice.

The New York women who came to the Clinical Research Bureau were thoroughly familiar with a number of contraceptive technics, and as a group they had used them with considerable effectiveness. It was quite unnecessary to educate most of them to the use of contraception. They sought and obtained advice on technics which would presumably be more acceptable to them than the contraceptives they had used previously.

Commercial contraceptives were less accessible to the women who attended the Cincinnati Maternal Health Clinics than to the New York patients because most of them were too poor to buy reliable contraceptives. Many of them lived in crowded homes under conditions which made the regular use of any contraceptive extremely difficult. In addition to furnishing them with effective contraceptive technics, the Cincinnati clinic had the responsibility for educating many of them to the regular use of contraception.

These problems were intensified in Spartanburg, and that clinic had an even greater educational responsibility. Few of the patients had ever used effective contraception. In almost half the cases serious illness made further pregnancy dangerous to the life and health of the mother. Social and economic handicaps were even greater for these women than for the Cincinnati patients. It was imperative that they learn to use contraceptives consistently and effectively if they were to be spared the hazards of serious illness or death.

TABLE 3.—*Ratio of Effectiveness* of Each Type of Contraception Before Clinic Attendance for Four Groups of Women*

Type of Contraception	White Patients of: Clinical Research Bureau (N. Y. C.)	Cincinnati Maternal Health Clinics	Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
Total	79	52	47	28
Condom	86	81	50	43
Coitus interruptus	78	45	53	†
Douche	61	25	23	15

* Ratio of pregnancies prevented to those expected had no contraception been used. For method of computation see Stix and Notestein: Controlled Fertility, pp. 58-59, table 25.
† Insufficient exposure.

TABLE 4.—*Proportion of Each Type of Contraceptive Practice in the Preclinic Exposure with Contraception of Four Groups of Women*

Type of Contraception	White Patients of: Clinical Research Bureau (N. Y. C.)	Cincinnati Maternal Health Clinics	Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
	Total Number of Years of Exposure with Contraception			
	5,743.5	6,468.4	1,215.8	311.9
	Percentage of Exposure with Each Type			
Total	100.0	100.0	100.0	100.0
Condom	31.4	23.9	32.3	25.1
Coitus interruptus	36.4	35.8	29.0	11.3
Douche	5.4	23.0	17.1	49.7
All other contraception*	26.8	17.3	21.6	13.9

* Includes safe period, suppository, pessary, sponge, and so on, as well as all alternations of two or more contraceptives.

10. Thirty-one per cent of the Negro women had positive Wassermann and/or Kahn reactions. For proportions of pregnancies terminating in stillbirths and spontaneous abortions for the Negroes with syphilis, as compared with those without, see Stix: Syphilis and Uncontrolled Fertility,[7] table II.

THE CLINIC SERVICES AND THE MEASUREMENT OF THEIR EFFECTIVENESS

The policies of the three clinics were alike in that an occlusive rubber device, usually a diaphragm, and jelly to be used by the wife, were prescribed for 90 per cent or more of the patients of each clinic (table 5). Contraceptives of this type have usually been considered the only methods suitable for prescription. The use of a contraceptive involves highly personal problems, however, and it seems unlikely that a single type of contraception could be acceptable to all the couples for whom it is prescribed. For this reason the wisdom of such a single minded policy, which makes little or no allowance for individual or group differences, is open to question.

TABLE 5.—*Types of Contraception Prescribed for the Patients of Three Clinics*

Contraceptive Method Prescribed	White Patients of: Clinical Research Bureau (N. Y. C.)	Cincinnati Maternal Health Clinics	Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
	Number of Women			
	991	1,009	530	457
	Percentage for Whom Each Method was Prescribed			
Diaphragm and jelly	79.0	98.0	89.6	92.6
Cervical cap and jelly	14.7	....	....	....
Condom and jelly	1.6	....	0.8	0.2
Sponge and jelly or powder	2.4	....	1.3	2.6
Jelly alone	2.2	2.0	0.2	...
Diaphragm and/or sponge	...	...	4.9	4.4
Diaphragm and/or condom	...	...	2.8	...
Other	...	...	0.4	0.2

In order to ascertain the results of these policies, it is necessary not only to know the effectiveness of the prescribed technics in preventing pregnancy for those women who use them but also to learn how many patients never use the prescribed contraceptives, how many continue to use them for as long as their experience is known and how many use them and then give them up. It is also important to know about the subsequent practice of couples who reject the prescribed technics.

In all three of the areas under consideration, the contraceptives prescribed by the clinics proved highly effective. For those patients who used them, the prescribed contraceptives reduced the risk of pregnancy by between 80 and 94 per cent (table 6). The ratios of effectiveness were lowest for the Spartanburg women and highest for the New York clinic patients. It is not

surprising that the Spartanburg patients were less skilful in using the diaphragm than the average patient in New York or Cincinnati. The effectiveness with which it was used in Spartanburg was approximately the same as that observed for relief recipients in Cincinnati.[11] It is probable that women in both groups were not only handicapped by the conditions under which they lived but were also poorly equipped by education and intelligence to use a complicated contraceptive technic consistently and correctly.

Not all women were willing to use the prescribed contraceptives. Table 7 shows the proportions of women in each group of clinic patients who never used them, who used them for a time and then discarded them and who were using them at the time they were interviewed. In spite of a longer average postclinic period in Cincinnati, with a correspondingly greater opportunity for the rejection of the prescribed methods, the proportions of women using the prescribed contraceptives in any form when their records were closed were significantly higher in both Cincinnati and Spartanburg than in New York.[12]

The differences between the New York and the Cincinnati patients were even greater when the proportions using the prescribed contraceptives at equal intervals

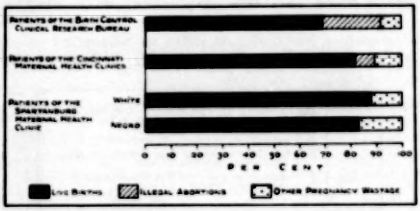

Chart 3.—Proportion of pregnancies terminating in live births, illegal abortions and other pregnancy wastage for four groups of women prior to clinic attendance.

following the initial clinic contact are compared. Chart 4 shows, for the four groups, the proportions of women still in need of contraception who were using the prescribed contraceptives at successive intervals during the first year following their initial contact with the clinic. In all three clinics the most rapid loss of patients occurred within a brief period after the first clinic contact. A year after they had first sought expert contraceptive advice, the proportions of women in the three areas who were using the contraceptives given them ranged between about 55 per cent for the New York patients and for the Spartanburg Negroes, and 68 per cent for the Cincinnati women. Had it been possible to compute similar figures for the lost as well as for the interviewed patients, the proportions using the methods advised would have been considerably lower for all groups.

A variety of reasons were given for the rejection of the prescribed methods, but it should carry considerable weight with physicians and clinic administrators that 30 per cent of the New York women, 24 per cent of the Spartanburg Negroes and about 20 per cent of the women in each of the other groups gave up the diaphragm because it was uncomfortable, difficult to place, esthetically unacceptable or too much trouble to use.

TABLE 6.—*Per Cent of Effectiveness of Each Type of Contraception as Used by Four Groups of Women After Clinic Attendance* **

Type of Contraception	White Patients of: Clinical Research Bureau (N. Y. C.)	Cincinnati Maternal Health Clinics	Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
All contraception	93†	85	81	78
All use of clinic prescription	94	90	81	80
Exclusive use	93	92	84	83
Use of variants‡	96	64	70	68
All other contraceptives	91†	72	81	55

* Ratio of pregnancies prevented to those expected, had no contraception been used.

† These ratios are slightly higher than those shown in Stix and Notestein: Controlled Fertility, table 49, because those in table 49 were standardized to the period-of-married-life distribution of all exposures with postclinic contraception, and those presented here were not so standardized.

‡ Alternate use of clinic prescription and other contraceptives or no contraception, or use of only part of the clinic prescription.

It has been shown in table 7 that between 45 and 57 per cent of the women who sought advice from each clinic either never used the contraceptives given them or ceased using them before the follow-up study was undertaken. Some of these women turned to the use of other contraceptives; some abandoned the use of contraception entirely. Table 8 shows the proportions of couples with each pattern of contraceptive practice

TABLE 7.—*Proportions of Patients of Three Clinics Who Never Used the Prescribed Contraceptives, Who Used Them and Then Abandoned Them and Who Were Using Them at the Time Their Records Were Closed*

Use of Clinic Prescription	White Patients of: Clinical Research Bureau (N. Y. C.)	Cincinnati Maternal Health Clinics	Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
	Total Number of Women in Need of Contraception at Closing Date			
	943*	1,419†	412‡	371§
	Percentage in Each Category			
Never used	12.0	2.7	10.2	11.3
Discontinued	45.2	44.7	34.5	37.2
Using at closing date	42.8	52.5	55.3	51.5

* Total exclusive of 22 women whose exposure had ceased and 26 women who gave up the use of clinic prescription because they were planning pregnancy.

† Total exclusive of 146 women whose exposure had ceased and 56 women ill or planning pregnancy.

‡ Total exclusive of 79 women whose postclinic experience was unknown, 2 women not fitted, 38 women whose exposure had ceased and 2 women planning pregnancy.

§ Total exclusive of 67 women whose postclinic experience was unknown, 18 women whose exposure had ceased and 1 woman planning pregnancy.

after the wives had been advised at the clinics. The proportions using no contraception either throughout the postclinic period or after they had given up the clinic prescription were very low in New York and Cincinnati and very high in Spartanburg. Thirty-nine per cent of the Negro and 23 per cent of the white women in Spartanburg had given up any attempt to use contraception by the time their records were com-

11. Stix: Birth Control in a Midwestern City,[3] table 22.

12. The data for all three clinics relate only to those patients who could be found and interviewed between one and five years after their initial contact with the clinic. It may be assumed that those women who failed to maintain contact with the clinics and therefore could not be found were probably not using the contraceptives prescribed for them. For a detailed discussion of the possible bias introduced by the loss of between 15 and 20 per cent of the patients originally in each sample, see references 1, 2 and 3.

pleted. Only 2 per cent of the women in Cincinnati and only 3 of the 991 women in New York did the same. In New York 60 per cent and in Cincinnati 46 per cent of the couples turned to the use of other types of contraception, mainly those with which they were already familiar. Only 20 per cent of the white and

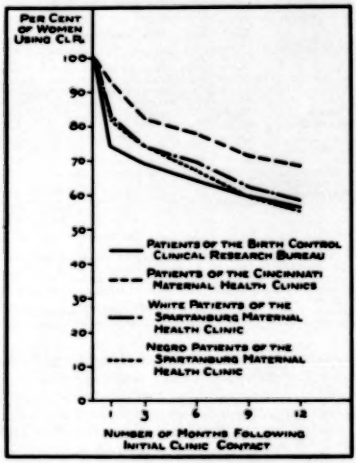

Chart 4.—Proportions of clinic patients using the prescribed contraceptives at successive intervals following their initial clinic contact.

10 per cent of the Negro couples in Spartanburg, who had had much less previous experience with contraception, attempted the use of contraceptives other than those prescribed.

In New York and in Cincinnati the contraceptives most frequently used by couples who decided against using the clinic prescription were coitus interruptus and the condom, in the order named (table 9). In Spartanburg these were also the methods of choice of white couples but in the reverse order. Fifty-six per cent of the Negro women who preferred other contraceptives to those prescribed at the clinic used the douche.

All contraception was more effective after clinic attendance than before for the patients of all three clinics. The percentage of increase in the effectiveness of contraceptive practice after the women had been advised at the clinics is shown in chart 5. For the New York women the postclinic effectiveness of all contraceptives, including those prescribed, was only 18 per cent greater than before clinic attendance, because their preclinic use of contraceptives was so effective that there was little opportunity for improvement. For Cincinnati women the increase was 63 per cent and for Spartanburg white women 72 per cent. For the Negro women, whose preclinic contraceptive practice had little effect on their fertility, the increase was 179 per cent. Even when experience with the prescribed contraceptives was excluded, increases in the effectiveness of other types of contraception ranged from 15 per cent for the New York patients to 96 per cent for the Spartanburg Negroes.

The findings of the studies summarized in this report have important implications for policy, because the four groups of patients studied were typical of the widely differing groups served by physicians and clinics in various sections of the country. The New York group was probably more nearly like the patients of the average urban physician in private practice than like the patients of other clinics. The methods prescribed at the clinic were very satisfactory for some of the patients. The patients who were dissatisfied with the clinic prescription, however, should have been taught the best use of those technics which they preferred. A detailed analysis of their reactions suggested that a more flexible policy, permitting the prescription of a wide selection of generally used technics, would probably have been more satisfactory to the patients.[13]

The patients of the Cincinnati clinic were probably representative of the average urban maternal health clinic clientele. For this group also the clinic should have offered a wider choice of contraceptive technics. The cost of commercial contraceptives may have prevented the use of the more effective methods, such as the condom, by many couples who did not like the diaphragm and jelly. For those couples who were not on relief, the condom ranked high among alternative methods, but couples on relief depended mainly on coitus interruptus or the douche. Had the clinic provided a variety of methods at little or no expense, the service might have been considerably more effective.

The patients of the Spartanburg clinic are typical of women of low economic status in Southern areas of population pressure. The surprising finding for this

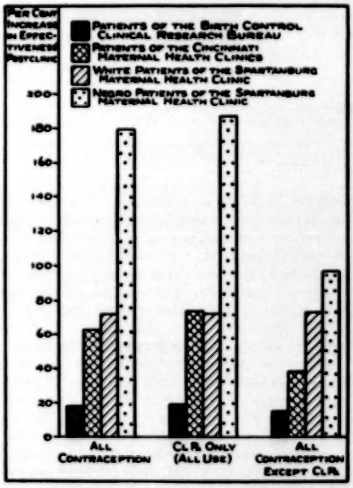

Chart 5.—Percentage of increase in the effectiveness of the contraception used after clinic attendance over that used before clinic attendance, for four groups of women.

group is that so many patients were willing to use a complicated contraceptive technic in spite of inadequate education and poor housing. It is probable that many women who realized the hazard of an additional preg-

13. Dickinson, Robert L., and Morris, Woodbridge, E.: Techniques of Conception Control, Baltimore, Williams and Wilkins Company, 1941, p. 8. Stix and Notestein.[3]

nancy made a special effort to prevent the occurrence of such a pregnancy. For the couples without funds, the methods prescribed at the clinic and those which required no expenditure of money were the only ones available.

It is obvious that a contraceptive service for a group such as that attending the Spartanburg Maternal Health

TABLE 8.—*Contraceptive Practice After Clinic Attendance for Four Groups of Clinic Patients*

Contraceptive Practice After Clinic Attendance	White Patients of: Clinical Research Bureau (N. Y. C.)	White Patients of: Cincinnati Maternal Health Clinics	White Patients of: Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
	Number of Women with Known Postclinic Exposure			
	992	1,618	448	383
	Percentage with Each Type of Contraceptive Practice			
Total	100.0	100.0	99.9	100.0
No contraception at all	0.2	0.2	7.1	11.7
Clinic prescription or variant only	40.2	51.4	56.7	50.9
Other contraceptives only	11.5	2.2	6.2	4.7
Clinic prescription, then other contraceptives	48.0	44.2	13.8	5.5
Clinic prescription, then no contraception	0.1	2.0	16.1	27.2

Clinic is one which presents special problems. The ideal service for a group of such low economic and social status should offer a choice of very simple contraceptives requiring as little forethought and care as possible. The so-called "simple" feminine technics usually prescribed are cumbersome, however. For example, the Spartanburg clinician reports that few patients are willing to use the sponge and foam powder because they find it uncomfortable and just as difficult to use as the diaphragm, and they have less confidence in it. The very fact that nearly half of the 90 white couples using other types of contraception after they attended the clinic used condoms (table 9) is probably an indication that this method should have been prescribed more frequently.

If patients are willing to use the diaphragm and jelly or a similar technic, it has definite advantages over male technics in that it puts the control of fertility into the hands of the wife whose health is at stake. If that technic is not acceptable, however, every effort should be made to substitute another and preferable contraceptive which the couple can use effectively. It must be stressed repeatedly that the use of contraception involves many personal problems and adjustments. A method which may be relatively ineffective for some couples may be highly effective for the couple to whom it is acceptable and who use it with care and diligence, whereas even a highly effective method is of little or no use to the couple who dislike it and will not use it consistently. The solution of the problem may be more difficult in a rural Southern area than in a city such as New York, because fewer patients will have used any contraceptives previously and there will be less opportunity to encourage the best use of familiar technics. The wise policy for every physician and clinic, however, is to make sure that every couple is given the contraceptive or contraceptives best suited to individual needs and preferences and to educate each patient to return for further advice if the methods first prescribed are unsatisfactory.

Of the three clinics selected for the present study, the one in Spartanburg is best designed to meet the medical needs of the patient for whom pregnancy would constitute a health hazard. Its interrelationship with the referring services in the hospital permits the best care of the patient from all points of view. An attempt is made to educate the patient who is referred for contraceptive advice to understand the importance of avoiding pregnancy until the referring physician advises her that pregnancy may be safely undertaken. In the repeated pelvic examinations made at the clinic, conditions are frequently found which justify referring the patient for types of medical care other than those for which she is already under supervision.[14] It would seem highly desirable that, with the limited funds available, all subsidized clinics be under hospital or public health supervision in order that the patients in most urgent need of contraceptive advice may be the ones to use such services.

Among the significant and unexpected findings of the present studies has been the discovery that untutored methods of contraception are used quite extensively and with a considerable degree of effectiveness even by those groups who, for one reason or another, are referred for expert contraceptive advice. The effectiveness of contraceptive practice in large groups of people, unselected with respect to overt fertility or a special interest in controlling it, is as yet unknown, but it is certain that vast numbers of people in this country use contraception and probably do so with a fair degree of success.

For medically supervised contraceptive services, as well as for the protection of the mass of the population using commercial contraceptives, it is important that one of the recommendations of the Committee to Study Contraceptive Practices of the American Medical Asso-

TABLE 9.—*Proportion of Couples Among Those Using Contraceptives Other Than Those Prescribed, Who Used Each Contraceptive Method After Clinic Attendance*

Type of Contraception Used	White Patients of: Clinical Research Bureau (N. Y. C.)	White Patients of: Cincinnati Maternal Health Clinics	White Patients of: Spartanburg Maternal Health Clinic	Negro Patients of Spartanburg Maternal Health Clinic
	Number of Couples Using Any Type of Contraception Except Clinic Prescription or Postclinic Variants			
	584	750	90	39
	Percentage Using Each Type			
Total	100.1	99.9	100.1	100.0
Condom	32.5	34.1	47.8	25.6
Coitus interruptus	40.1	31.3	21.1	5.1
Condom or coitus interruptus	13.4	7.7	7.8	2.6
Douche	4.3	21.7	15.6	56.4
All other types*	9.8	15.1	7.8	10.3

* Includes all alternations of methods not otherwise specified, as well as suppository, sponge, jelly, and so on.

ciation be put into effect as soon as possible. In its report to the Association in 1937 the committee recommended "that the American Medical Association undertake the investigation of materials, devices and methods recommended or employed for the prevention of conception, with a view to determining physiologic, chemical and biologic properties and effects, and that the results

14. Stix, Regine K.: Gynecological Case-Finding in Maternal Health Clinics, Milbank Memorial Fund Quarterly 19:36 (Jan.) 1941.

of such investigations be published for the information of the medical profession."[15]

If the American Medical Association would set up standards for contraceptives as it has for drugs and foods, much could be done to improve the quality of commercial contraceptives. Wise pressure on commercial distributors to bring the price of approved products down to a point at which wider distribution would pay for decrease in price would probably make it possible for many people in the poorer sections of the country, where birth rates are highest, to purchase contraceptives not now available to them and would assist in reducing birth rates for that part of the population least able to bear the cost of rearing and educating large families.

Milbank Memorial Fund, 40 Wall Street.

THE COLOSTOMY QUESTION

LOUIS J. HIRSCHMAN, M.D.
DETROIT

One of the greatest boons to the patient suffering from a major obstruction or malignant disease of the colon, particularly the left half of this viscus, is the hope of either permanent cure or prolonged comfort provided by an artificial stoma. Almost every intestinal surgeon and proctologist has studied the problem of providing a satisfactory colostomy, with special reference to some form of bowel control.

Practically every portion of the abdominal wall and the perineum has been utilized for the location of the stoma. The number of different types of colostomies and the ingenuity expended in their formation would make exceedingly interesting and intriguing surgical history. The number of names attached to different types of colostomies resembles a roll call of most of the pioneers in intestinal surgery.

Every surgeon or proctologist operating on a diseased colon has been hopeful of supplying a type of colostomy which would satisfactorily exclude the diseased portion as well as substitute a well functioning artificial anus for the natural aperture. The ideal colostomy should be one formed well above the affected segment of the bowel. Whether this colostomy is to be a temporary or a permanent one will often affect the surgeon's or proctologist's decision as to its location.

When one wishes to divert the fecal stream temporarily, as in the treatment of nonmalignant diseases amenable to resection and anastomosis such as deformities, segmental polyposis or complicated multiple fistula, a double barreled colostomy is of course indicated. A double barreled colostomy may also be advisable as a permanent colostomy in patients suffering from inoperable and irremovable malignant growths and in patients whose general physical condition is precarious and in whom haste is an imperative factor.

The temporary or double barreled colostomy is of necessity an abdominal colostomy. In most instances some portion of the transverse colon is utilized for this purpose. The subsequent closure of a temporary colostomy of the transverse colon is a comparatively simple procedure. One has the advantage of omental utilization for added safety. Not infrequently the descending and also the upper portion of the sigmoid colon has been employed for temporary colostomy, and when there is sufficient mobilization there is no reasonable objection to it.

In the fulguration of polyps in the upper part of the sigmoid colon a temporary sigmoidal colostomy is of distinct advantage. There is really nothing of a controversial nature about the location of a temporary colostomy.

When it comes to the site of a permanent colostomy, particularly in a patient afflicted with a malignant condition of the anorectal canal, rectosigmoid or the lower part of the sigmoid flexure, there are several factors which must be considered. The first of these is the selection of a section of the colon at least 6 inches above the upper limit of the neoplasm.

Naturally, in the minds of the majority of surgeons the extent of the growth, if not its grade, and the possibility of its complete excision with the least hazard are the prime factors. A patient's life is to be saved or prolonged, obstruction relieved and intestinal function restored to as complete a degree as is compatible with safety in the case at hand.

After the routine study of the patient, and after proctoscopy and sigmoidoscopy have been performed, the roentgenologic examination is of great importance. Fluoroscopic examination, with manipulation of the barium-filled colon, will often decide the type of colostomy to be performed. If the sigmoid flexure is long, redundant and freely movable above the neoplasm, greater latitude in the choice of the colostomy site is afforded the surgeon.

While the presence and extent of hepatic metastasis is an important guide in the prognosis of a patient suffering from a malignant growth in the colon, this should not necessarily influence the location of a permanent colostomy. If the colostomy is to be the best possible substitute for the normal anus and rectum, it should be located at a site in which it can function and be cared for by its possessor with the least amount of discomfort and embarrassment, either physical or mental.

Naturally, when one has been accustomed to normal defecation from a normal perineal anus in the normal sitting position, the news that relief from disease will require a complete change in the mode of intestinal evacuation comes as a psychic shock to even the most phlegmatic and philosophic person.

The great majority of those of us dealing with malignant conditions of the large bowel feel that an abdominal colostomy, with complete eradication of all affected tissue below the colostomy, is, in the present state of our knowledge, the best treatment there is to offer. When such a colostomy is to be performed, there are many arguments by many surgeons as to why various quadrants of the abdomen are utilized as a permanent colostomy site. It seems to me that the mental as well as the physical comfort of the patient should be considered along with the anatomic results to be achieved.

After observation of the discomfort and local irritation which some patients have suffered from a low left inguinal colostomy, the question has arisen Why continue to use this site? Whether one wears a cup, a cap, a dome, a bag or simple gauze pads there is a lack of symmetry to the patient's contour which violates his personal privacy by announcing to the world that there is "something wrong in Denmark." This is more noticeable, of course, in men than in women but is definitely of moment to both sexes.

While speaking of the type of protective covering for a colostomy, through the suggestion of one of my

15. Minutes of the House of Delegates, J. A. M. A. **108**: 2218 (June 26) 1937.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 5, 1941.

patients, I have adopted a simple procedure. The metal ring and band of the Brick apparatus is utilized. However, instead of employing the now discarded rubber colostomy bag, a simple and inexpensive cover has been suggested.

Fig. 1.—Patient lying on left side. Single barreled umbilical colostomy.

I instruct my patients to purchase from the 5 and 10 cent store some of the waterproof elastic covers used for cups and small bowls to be placed in the refrigerator. These are so inexpensive that they can be discarded after use. The patient is instructed to place a small wad of absorbent cotton over the colostomy to act as a muffler for gas and also to absorb liquid. This device does not occupy as much space as the usual colostomy cap, cup or dome and is certainly less conspicuous under the clothing.

From the standpoint of the strength of the abdominal wall and the presence of a natural opening, well supported by muscular structures, the umbilicus offers many advantages as a colostomy site.

On account of its central location, any portion of the right and median colon ordinarily utilized for colostomy purposes can be brought out through an opening made by excising the umbilicus. Here, it is especially well supported by its adhesion to the thick rectus muscles which closely hug it at this point. Even a temporary colostomy at this site is well out of the way if a second stage abdominoperineal resection is to be performed.

In those rare instances in which, for some reason or other, the colostomy is not placed exactly at the umbilical opening but close to it, the umbilicus itself is always excised. This is done because fecal matter from the colostomy will enter and soil the umbilicus, and the patient's efforts to cleanse this area often result in trauma, erosion and infection.

A curved Pfannenstiel incision allows the skin flap to be raised upward in such a way as to give better exposure for the resection in the lower part of the abdomen than is usually obtained by the midline or rectus wounds. Any dressings or colostomy apparatus that may be required is so centrally placed that bodily symmetry is preserved.

As the patient sits on the toilet, he holds a crescent basin underneath the colostomy while he injects, with a hand syringe, water necessary to prime the colostomy if and when movements do not occur spontaneously at least daily.

In emaciated patients, this location is a decided advantage over a site in the lower inguinal region because of the fact that a prominent anterior ischial spine not infrequently becomes eroded by irritation from feces or a bandage. The mobility of the sigmoidal segment selected for an inguinal colostomy is sufficient to allow the same portion of the colon to be swung upward to the umbilical site as well as downward in the left lower quadrant.

There is no reason why as much bowel, with as many metastatic glands, cannot be removed with the establishment of an upper midline colostomy as with the inguinal site on the left side. As has been mentioned, the same portion of sigmoid, with good circulation, is used whether swung upward or downward.

There are patients who consult the proctologist for relief when it is not always possible for him to perform the type of operation which may seem to him as ideal as any at his disposal in the present state of our knowledge. I refer particularly to those patients who have such an inordinate prejudice against an abdominal colostomy that they refuse and refute any type of relief which involves the employment of this most valuable procedure.

In many instances one is forced to inform the person that there is nothing else to be offered. In a fairly large group of properly selected cases, however, a perineal colostomy will perform extremely satisfactory service and will be accepted by those patients whose lives would be otherwise sacrificed if they are given no alternative but the performance of an abdominal colostomy.

Fig. 2.—Double barreled umbilical colostomy.

It is, therefore, interesting to note that there is a gradually increasing number of patients with perineal colostomies who have survived the five year limit without evidence of recurrence. For those persons who otherwise would have succumbed to the ravages of malignant conditions of the colon, several years at

least of mental as well as physical comfort have been added to their lives.

With the proper instruction as to the care of the perineal colostomy, and regularity of diet and habit, these persons have been able to continue to pursue their occupations and, in many instances, have not been forced to change their mode of living.

The technic of perineal extirpation, as well as of abdominal extirpation, with the establishment of a perineal anus at the site of the colostomy, has progressed to a point at which it can be stated that practically as much involved glandular tissue can be removed by this method of procedure as by the type of operation known as the Miles technic.

As a matter of fact, one type of perineal extirpation, as suggested by Lynch, disposes of just as much of the rectum and its surrounding fat muscle and glands as does the perineal phase of the Miles operation.

In this type of excision, of course, there is no attempt made to conserve anything in the way of muscles, nerves or coccyx. The pelvic cavity, from the promontory of the sacrum down, is completely cleaned out. In this type of operation the stump of the sigmoid flexure, which would have been utilized in an abdominal colostomy, opens just below the pelvic floor. With a large rubber tube stitched into this stump and the cavity packed with gauze surrounding the tube, it is a perfectly safe procedure. As the wound heals and contracts, the sigmoidal stump gradually prolapses to the cutaneous level and forms the new artificial anus at the normal site.

Fig. 3.—Patient lying on left side. Perineal colostomy with slight mucosal prolapse closing stoma.

In some instances in which the growth is low in the anorectal canal and the sigmoid flexure is quite redundant with a long mesentary, the sigmoidal stump can be brought down to the perineal level and sutured at the time of operation.

In a growth requiring abdominoperineal extirpation, the technic of the abdominal portion of the operation is the same as for the abdominal phase of the one stage Miles operation. Instead of severing the bowel and turning the sigmoidal stump up through the abdominal wall, the rectum and a portion of the sigmoid flexure, well above the growth, is pushed into the pelvic cavity and the new pelvic floor built from the lateral sheaths

Fig. 4.—Patient lying on left side. Stoma approximately one-half size of normal anus.

of the mesentery of the sigmoid, just the same as with the Miles technic.

After closure has been effected, the perineal portion of the operation proceeds in the same manner excepting that the intact rectum and sigmoid flexure is brought down and out into the perineal wound and divided well above the tumor.

If sufficient healthy bowel with good circulation permits, the sigmoidal stump is sutured to the perineal skin; if not, the sigmoid flexure is sutured to the new pelvic peritoneal floor and severed well below it. The rubber tube is then inserted and stitched in place as previously mentioned, and dressings are applied exactly the same as if the entire operation had been performed from below.

While in the operation performed through the perineum it is not possible to ascertain the presence or absence of metastases to the liver, this is not a vital drawback; if metastases are present, nothing surgical can be done about them anyway.

CONCLUSION

In an experience of many years in which practically every type of single and multiple stage operation for the removal of a carcinoma has been performed, and while many types of colostomies have been established, the perineal stoma has retained a definite position in the list of operations at our disposal.

Every surgeon must recall some patients who absolutely refused an operation which included an abdominal colostomy. If those patients had been offered a perineal colostomy, after due explanation, I am convinced from my own experience that a fairly good proportion of those patients who died without operative relief would have had at least a longer life. Certainly they would have had more comfort, both physical and mental. Some reject operation and die because of their inordinate, and often unwarranted, fear of and their repugnance to abdominal colostomy.

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ABSTRACT OF DISCUSSION

DR. NEIL W. SWINTON, Boston: At the clinic our colostomies are routinely made on a level with the umbilicus at a point between the outer and middle thirds of the left rectus muscle. In our experience this type of colostomy has been very satisfactory. This allows a careful closure of the space between the colostomy and the parietal peritoneum on the left and prevents an occasional obstruction of the small bowel. In our early experience, when we did not do this, it resulted in two or three instances of herniation and obstruction of the small bowel. When discussing the question of colostomy, there is a point which one cannot overemphasize. With the completion of the operation for the removal of the disease and the formation of an artificial anus, the surgeon's obligation to that patient is far from finished. The greatest care and attention must be given to the future management of the colostomy and in teaching the patient to regulate his colostomy so that he will be able to return to his normal occupational and social status. We have found that a mildly constipating diet, the careful regulation of bowel function by irrigations every two to three days, which can be taken by the patients themselves, will in the vast majority of these cases return these people to a happy and useful existence.

DR. G. JOHNSON HAMILTON, New York: I am in agreement with Dr. Hirschman's predilection for the perineal stoma. I have been using it for years and believe that it functions at least as satisfactorily as an abdominal one and certainly is better psychologically. In a review of fifty-two Lynch operations I find that complications developed with the stoma in sixteen; in six of these a prolapse of the rectum developed which necessitated a cuff amputation, which was ordinarily performed in the office and without anesthetic. In ten of them a tendency toward constriction developed, five of them sufficiently severe to necessitate a plastic operation in the hospital. In none of them did the fibrosis extend more than 2.5 cm. from the skin edge. All these patients have now developed an individual technic which gives them adequate control and allows them to play their part in society without embarrassment. I have not tried the substitution of a colostomy for the umbilicus but agree with Dr. Hirschman that it seems a very good idea and certainly I will adopt it should I ever again have to make a permanent abdominal colostomy.

DR. CLEMENT L. MARTIN, Chicago: Dr. Hirschman's favorable experience with umbilical colostomy in a large number of cases makes him a rather strong advocate for it. There is a divergence of opinion here: he regards such a colostomy as less conspicuous and easier to care for—other men feel that a lateral colostomy has these advantages. I have been deterred from using it chiefly because of the possibility of obstruction. Midline colostomies are not very satisfactory except as temporary ones; if low there is commonly a mat of intra-abdominal adhesions about the bladder; if high and permanent there is, I think, more danger of obstruction. Three cases of obstruction following umbilical colostomy in the last few months have come to my attention: 1 while the patient was still in the hospital, 1 nine months, the other a little longer after operation. It is unfair to disparage umbilical colostomy on such evidence alone, but the danger of obstruction does compel consideration. As to a perineal stoma: Over a period of years it has been regarded as a poor, unsatisfactory site for a colostomy and it still is and the only excuse for it, as Dr. Hirschman has said, is when the patient refuses anything else. Perineal resection of the rectum without preliminary colostomy or laparotomy, at which time the presence of regional and liver metastases can be determined, is, in my opinion, rarely or never necessary.

DR. DESCUM C. MCKENNEY, Buffalo: I agree with the author, from a limited experience, that in most cases a perineal colostomy functions satisfactorily and, because it is in the location of the normal anus, the care of it is what the possessor has been accustomed to and hence he does not appreciate any very objectionable change. This colostomy is something to offer a patient when, in the rare case, he absolutely refuses an abdominal colostomy and then only if the location of the malignant growth is suitable for the Lynch operation; i. e., it offers as good a chance for complete eradication as by any other method. Dr. Hirschman has long been an advocate of the umbilical colostomy and it has some distinct merits, especially when the transverse colon is utilized. When the mesentery of the pelvic colon is short a carefully plotted colostomy in the left lower quadrant to me is preferable. Utilization of the midline incision for a colostomy, below the umbilicus, shortens operating time and has many of the advantages claimed for the umbilical colostomy. The author is as careful about instructing his patients in the care of their colostomy as he is in the selection of the location for it. If this rule were followed by all surgeons there would be less objection to it. The layman, naturally, dreads the discomfort, leakage, odor, audible escape of gas, difficult care and unsightly appearance. I have my patients use an aluminum cap, which overcomes these objections and in addition offers support which tends to prevent hernia. Most surgeons who are doing many colostomies soon develop a method of their own, often improved by following practical suggestions from the patients themselves. Irrigating the colon daily or every second or third day, taking from thirty to forty-five minutes, often makes it possible for the patient to wear only a pad over the colostomy. Irrigation, however, as ordinarily carried out, is a messy, smelly operation, because there is no sphincter control; however, with an apparatus which supplies an artifical sphincter it is possible to empty the colon completely in a cleanly fashion. Such an apparatus I described and illustrated in a paper on Cancer of the Rectum, Preoperative Treatment and Palliative Colostomy, read before the American Proctologic Society in May 1932.

DR. THOMAS E. JONES, Cleveland: With regard to the site of the colostomy, it should be put where it fits best. It so happens that, with the type of operation I do, it generally fits best in the midline incision about half way between the symphysis and the umbilicus. Of infinitely greater importance is the indication for colostomy. It is often indiscriminately done. My own feeling is that the obstruction is the only indication. Many will die from metastasis before they become obstructed with a cancer of the rectum, and in this group it is wrong to do a colostomy and bring disrepute to a good surgical procedure. Posterior resection will always have its adherents. A surgeon should do the type of operation with which he is more familiar, provided the factors of operability, mortality and curability compare favorably with other procedures in vogue. My own results are much better with the one stage abdominoperineal procedure.

DR. WILLIAM H. DANIEL, Los Angeles: Dr. Hirschman has presented an important subject and has covered it so thoroughly that I have little to add. He has advocated the umbilicus as the proper site for the permanent stoma and I have used it a few times and found it entirely satisfactory. It has been my custom to establish a permanent colostomy in the midline incision in performing the one stage abdominoperineal resection and in some cases of a permanent double barreled type. Since the care of a colostomy by the patient has become simplified by the use of irrigation and proper diet, cumbersome dressings are not necessary and most persons are able to disguise the location of the colostomy by proper adjustment of the clothing. The perineal stoma is being used by some men whenever possible and by others when the patient refuses the abdominal location. The mental factor is an important one in considering the future welfare of the patient. The abnormal openings which I have seen located in the perineum seemed to function to the satisfaction of the patients who had them.

DR. CLAUDE C. TUCKER, Wichita, Kan.: The colostomy question is a debatable one and will likely always be debatable. The condition calling for a colostomy depends on the choice of location. For a temporary colostomy, diverting the fecal flow, Dr. Hirschman has chosen one way, and the umbilicus is as good as any other unless the patient has a very short mesentery. Then I think it would be wise to choose another location. I

haven't heard Dr. Hirschman express himself on this. I have heard patients state that they would rather die than sacrifice their natural habits, and they did, and I have heard surgeons make the same remark. A colostomy, wherever located, is not so bad if properly taken care of and properly done, but to convince all patients of that is a different thing; therefore I heartily agree with Dr. Hirschman as to establishing a perineal colostomy; thus many lives would be saved which otherwise would be sacrificed. I have found the Lynch type of operation very satisfactory, establishing a perineal anus at the site of the colostomy, as Dr. Hirschman has stated. One can go as high up in the Lynch operation as one does in a Miles operation. Dr. Lynch has gone as far as 71 or 72 cm. and I have gone as high as 57.5 cm. The patient with a perineal colostomy has the urge to go to stool and he can sit on the stool and enjoy the newspaper. Some drive in a hundred miles without soiling themselves, and they are happy patients. In doing a resection we have to think of the natural contour of the body, especially with women, and we are more than justified in doing this type of colostomy.

DR. MONTAGUE S. WOOLF, San Francisco: With all the talk about position of a colostomy and the way people are able to take care of colostomies, a colostomy is a terrible burden to put on a human being. It is certainly worse than an artificial limb; however, what we are after is life, and if we all want to have the longest life compatible with cancer of the rectum we must have first a wide excision of the cancer and then a colostomy. I think the Lynch operation does not get the main glands to the same extent as the abdominoperineal method of Miles. When one makes a perineal resection of this type one is likely to keep close to the bowel, and when one gets up far enough and is close to the bowel one cannot get the aortic glands of the mesentery. In other words the root of the mesentery is the part that must be removed: It is the part of the greatest consequence. The glands next to the colon have become infected through the former and it is no use removing these without having removed the glands infecting them.

DR. LOUIS J. HIRSCHMAN, Detroit: I stated that the best operation for the removal of carcinoma of the rectum and lower colon was a Miles one stage operation, and I tell my patients that. The best criterion of a good operation is one which will remove the entire lesion and all the involved glands so that one can still have a viable stump for the colostomy, whether it is placed high, low or sideways. The same stump of sigmoid which one swings upward for abdominal colostomy, whether an umbilical, lateral or inguinal colostomy, can be swung downward in most cases to the perineum. Before deciding on the type of operation, the surgeon should examine the patient carefully, instrumentally and radiologically. I mean by that that he should go to the x-ray department and should manipulate the barium filled sigmoid under the fluoroscope so as to know how much or how little sigmoid he has at his disposal and will not be embarrassed, after he has told the patient he will do a certain operation, to find he can't do it. This personal manipulation has been of invaluable use in my work, and I always feel that if a surgeon wants to fit his patient to the type of operation he had better stop operating. One must fit the operation to the case in hand. In the period of preparation, which lasts five to seven days, one cleans out the barium and otherwise prepares the patient. I mentioned perineal colostomy definitely to see if I could say a word which would help save the lives of those patients who absolutely refuse abdominal colostomy, and one has always had them. I do say that one can remove just as much tissue, just as many infected glands by an abdominoperineal operation with a perineal stoma in many cases as one can by an abdominoperineal operation with an abdominal stoma, and in a certain percentage of cases one can do a perineal operation of the Lynch type. I want to stress that a patient who would refuse an abdominoperineal operation with an abdominal stoma can be offered the same thing with a perineal stoma in about 7 to 10 per cent of the cases, and those who refuse the abdominal stoma would go off and die without relief otherwise, and one can give those few people the benefit of that type of operation when they refuse the other.

COMPRESSION OF BRACHIAL PLEXUS: THE SCALENUS ANTICUS SYNDROME

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SAN FRANCISCO

This report concerns the relief of symptoms by nonsurgical means in 60 of 74 patients with compression of the brachial plexus (medial cord) due to displacement.

The symptoms of compression of the brachial plexus are the same as those produced by cervical ribs. The condition has been described in the past six years by a number of authors. Some have used the term "neuritis of the brachial plexus, mechanical in origin," or "scalenus neurocirculatory compression" to indicate that the chief factor is pressure on the brachial plexus by the anterior scalenus muscle.

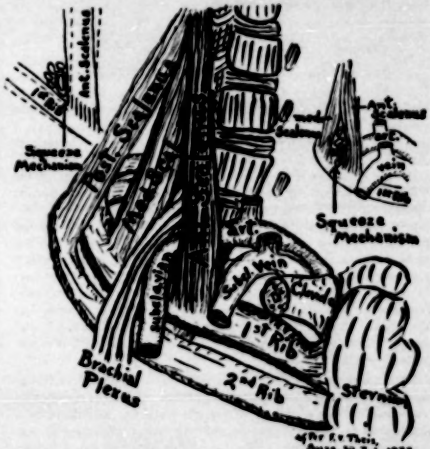

Fig. 1.—Relation of brachial plexus and the subclavian artery to the scalenus anticus and medius muscles and to the first rib. Small inserts indicate the squeezing mechanism produced (1) by the two scalenus muscles (upper right) on the upper portion of the brachial plexus and (2) by the acute angle (upper left) produced by the lateral border of the scalenus anticus muscle and the first rib (after Theis[4]).

Compression of the brachial plexus by a first dorsal rib was described over thirty years ago by Murphy.[1]

Scant attention has been given in the literature to the nonoperative treatment of the symptoms produced by cervical ribs, by abnormal first dorsal ribs or by the squeezing mechanism of the scalenus muscles and the first rib, the so-called scalenus anticus syndrome. Surgical treatment has consisted in resection of the cervical rib, resection of a portion of the first rib and, finally, simple division of the anterior scalenus muscle.[2]

The condition was popularized by the report in 1935 of Ochsner, Gage and DeBakey,[3] whose patients were cured by division of the anterior scalenus muscle.

From the Department of Surgery, Stanford University School of Medicine.

1. Murphy, T.: Brachial Neuritis Caused by Pressure of First Rib, Australian M. J. 15:582 (Oct. 20) 1910.
2. Adson, A. W., and Coffey, J. R.: Cervical Rib: A Method of Anterior Approach for Relief of Symptoms by Division of the Scalenus Anticus, Ann. Surg. 85:1839 (June) 1927.
3. Ochsner, A.; Gage, M., and DeBakey, M.: Scalenus Anticus (Naffziger) Syndrome, Am. J. Surg. 28:669 (June) 1935.

Theis,[4] in 1939, found that, since the symptoms were aggravated by faulty posture, conservative treatment was all that was necessary for 17 of 20 patients with suspected compression. He corrected the posture, prevented fatigue and in some instances immobilized the arm and shoulder.

Stopford [5] in 1919 reported on partial compression of the brachial plexus by a first dorsal rib and expressed the opinion that the essence of nonoperative treatment was to develop the trapezius muscle to such a point that it could support the pectoral girdle and so prevent the lower trunk of the plexus from being compressed by the rib. He advised faradic stimulation, exercises and massage to develop the trapezius muscle.

As early as 1907 Russel [6] reported that a patient was able to control the pain through elevation of the shoulder, for example by putting the involved hand on the opposite shoulder. The patient was able to sleep when the arm was raised under the head, thus elevating the shoulder.

ETIOLOGY

Compression of the brachial plexus is a brachial neuritis, with or without vasomotor or vascular disturbances in the upper extremity, which appears in certain persons because of an abnormal development of the shoulder girdle (Todd [7]) or of the brachial plexus (Jones [8]), factors that permit friction or pressure on the brachial plexus and the subclavian artery. This friction or pressure, with the resultant irritation of some of the fibers that supply the scalenus muscles produces contractions and spasm of the scalenus anticus and scalenus medius muscles in particular, so that an abnormal elevation of the first rib occurs. This elevation in turn increases the angle between the lateral border of the scalenus anticus muscle and the first rib, squeezing the lower trunks of the brachial plexus and the subclavian artery and also squeezing the plexus between the posterior lateral border of the scalenus anticus muscle and the body of the scalenus medius muscle [9] (fig. 1). Thus a vicious circle exists which is relieved when the anterior scalenus muscle is sectioned or when corrective posture is maintained day and night to overcome irritation of the plexus and spasm of the scalenus muscles. Trauma to the shoulder region or excessive strain on the shoulder and the supraclavicular region, such as that incurred by hod carriers and soldiers,[9] may be the exciting cause of symptoms.

SYMPTOMS AND SIGNS

Pain, tingling and numbness occur in practically all cases of compression of the brachial plexus. They may extend from the cervical, scapular or pectoral regions to the hand and fingers. Slight muscular weakness may be found, but atrophy and severe circulatory changes, such as cyanosis, coldness or gangrene of the fingers, are infrequent. The symptoms, therefore, are mainly sensory and sympathetic, with the pain of a dull, gnawing or burning character, and are affected by posture and work. Sleep is disturbed by the pain, and sedatives give slight relief. The irritation may be limited to the upper portion of the brachial plexus, with pain and paresthesia radiating up the posterior part of the neck and the occipital region and downward over the shoulder to the scapular region. It may involve the pectoral region and the inner side of the arm and forearm, simulating anginal pain.[10] Frequently the pain is limited to the distal half of an upper extremity, affecting the elbow, hand and middle fingers. Paresthesias and sensory disturbances may be bizarre in outline because of the involvement of sympathetic fibers.

DIAGNOSIS

The diagnosis of compression of the brachial plexus is made when local tenderness is found and the symptoms are reproduced by shifting the digital pressure vertically along the scalenus muscle over the width of the brachial plexus.

Pulling or pressing the affected shoulder downward, bending the head and neck to the opposite shoulder, turning the head to look over the affected or the opposite shoulder, pressing the affected arm against the chest with the shoulder depressed and throwing the shoulders and head back are other methods of aggravating the complaints and confirming the diagnosis.

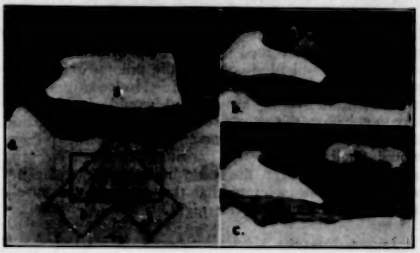

Fig. 2.—Arrangement of three pillows to overcome the squeezing mechanism during sleep. The patient's head rests on pillow 3. When he is lying on his back, the shoulders rest on pillows 1 and 2. With the patient sleeping on one side, the shoulder rests on the mattress between pillows 1 and 2.

During examination relief of symptoms usually follows shrugging of the affected shoulder, shrugging the shoulders and bending the head and neck forward and bending the head and neck to the affected side.

TREATMENT

The accepted and satisfactory surgical treatment for compression of the brachial plexus which has not been relieved by conservative measures is the division of the scalenus anticus muscle close to its insertion onto the first rib. The technic of the operation is that described by Adson and Coffey,[2] modified by excision of a portion of the muscle as recommended by Ochsner, Gage and DeBakey.[3]

Section of this muscle was performed in 14 of 74 cases of compression of the brachial plexus prior to March 1941. Ten patients secured complete relief. One died from hemorrhage. In 1, subsequent injections of procaine hydrochloride into the operative area, with massage, finally abolished the remaining symptoms. Two patients were reoperated on, with relief. Both had the plexus freed from scar tissue, possibly from hemorrhage, and 1 also had a dorsal sympathectomy.

4. Theis, F. V.: Scalenus Anticus Syndrome and Cervical Ribs, Surgery **6**: 112 (July) 1939.
5. Stopford, J. S. B., and Telford, E. D.: Compression of the Lower Trunk of the Brachial Plexus by a First Dorsal Rib, with a Note on the Surgical Treatment, Brit. J. Surg. **7**: 168 (Oct.) 1919.
6. Russel, C. K.: Supernumerary Cervical Ribs and Their Effects on the Brachial Plexus and Subclavian Artery, M. Rec. **71**: 253 (Feb. 16) 1907.
7. Todd, T. W.: The Descent of the Shoulder After Birth, Anat. Anz. **12**: 257, 1912.
8. Jones, F. W.: The Anatomy of Cervical Ribs, Proc. Roy. Soc. Med. (Clin. Sect.) **6**: 95, 1912.
9. Naffziger, H. C., and Grant, W. T.: Neuritis of the Brachial Plexus, Mechanical in Origin: The Scalenus Syndrome, Surg., Gynec. & Obst. **67**: 722 (Dec.) 1938.
10. Reid, W. D.: Pressure on the Brachial Plexus Causing Simulation of Coronary Disease, J. A. M. A. **110**: 1725 (May 21) 1938.

Conservative or nonoperative treatment was sufficient to bring relief of symptoms to 60 patients. The nonsurgical management consists of variations of the following regimen, depending on the severity of the symptoms: (1) elevation of the shoulder by a sling or by holding the hand across the chest in a fold of the buttoned shirt or coat, (2) elimination of the type of work that aggravated the symptoms and (3) a change in sleeping habits. Since two thirds of the 74 patients complained that their symptoms were worse or at least severe during the night, patients were instructed to sleep on three pillows arranged as illustrated in figure 2. Most patients were accustomed to sleep either without a pillow or with one pillow, a few slept on their abdomens and only 2 had learned that sleeping with the affected arm over the head gave relief.

Experience had shown that relaxation of the scalenus muscles and obliteration of the squeezing mechanism was obtained by using three pillows so arranged that when the patient was lying on the back, the shoulders, head and neck were forced forward. When the patient lay on the side, with the shoulder on the mattress between the two under pillows (fig. 2 *A*, pillows 1 and 2), and the head on the third or top pillow (pillow 3), there was no sinking of the head toward the under shoulder. If the good shoulder was down, a fourth pillow, under the affected elbow and forearm, would help in keeping the affected shoulder elevated. If the patients were awakened by pain they invariably found either that they had slipped off the pillows or that the pillows had become disarranged. No sedatives were given, since too long an interval would elapse under sedation before the pain produced by the bad position on the pillows or by disarrangement of the pillows would finally awaken the patient. Although sleeping with the arms over the head relaxes the squeezing mechanism, it was found that this position was rarely maintained throughout the night.

COMMENT

Compression of the brachial plexus has been diagnosed in 74 patients. Of these, 42 were women, with the condition present on the right side in 16. Five showed on roentgenograms rudimentary cervical ribs bilaterally, and 3 had such ribs on the right side. Seven women had a scalenotomy, 2 were reoperated on and 1 of the 2 had a dorsal sympathectomy. Of 32 men with compression, 2 had it bilaterally and 10 had the right side involved. Three had rudimentary cervical ribs on both sides, 2 had such ribs on the right and 1 had them on the left side. Six men had scalenotomy, 2 for symptoms that simulated coronary disease. Later 1 of these had an alcoholic block of the thoracic sympathetic nerves for true angina and the patient finally died of coronary thrombosis.

Five patients, 3 men and 2 women, had pains simulating anginal attacks which could be produced by digital pressure over the scalenus anticus muscle, and 3 were relieved by the nonsurgical procedures.

Patients with symptoms of several months' duration were not completely relieved until after two, three or four weeks of conservative treatment.

SUMMARY

Symptoms of compression of the brachial plexus are similar to those of cervical ribs, namely pain, tingling and numbness in the upper extremity, the shoulder and the scapular, cervical and pectoral regions.

They are due to the squeezing mechanism which compresses the brachial plexus between the scalenus anticus and scalenus medius muscles and the first rib. Spasm of these muscles elevates the first rib and establishes a vicious circle.

Treatment is surgical and nonsurgical.

Of 74 patients, 14 had scalenotomy, 10 achieving relief. The remaining 60 were relieved by conservative measures, consisting of rest and elevation of the shoulder on the affected side during the day and the use at night of three pillows so arranged for sleeping that the squeezing mechanism was overcome.

Clinical Notes, Suggestions and New Instruments

A SAFE METHOD OF APPLYING SOLIDIFIED CARBON DIOXIDE

C. C. CARPENTER, M.D., SUMMIT, N. J.

Unfortunately, the anatomic site of a cutaneous lesion must always be considered with the present methods of therapy with solidified carbon dioxide.

In the treatment of benign or malignant neoplasms of the skin and mucous membranes care must be taken that normal tissue is not frozen. With the older methods of cutting pencils from solid sticks, the very brittleness of the material caused it to chip. These small particles fell on nonpathogenic tissue, sometimes with serious consequences if the site of operation was around the eyes or within the body cavities. With the average duration of treatment of ten to thirty seconds the point on a solid stick is rapidly melted and a zone larger than the lesion is found to have been included in the treatment. Solidified carbon dioxide packed in metal tubes has the disadvantage of transmission of cold through the sides.

Fig. 1.—Treating angioma of upper eyelid with smallest applicator.

With the apparatus described here the plastic applicators insure complete insulation of the sides without danger to the operator's fingers or adjacent tissue (fig. 1). The amount of snow remaining in the applicator is at all times visible, and the finger tip plunger insures that no more than the required amount is at the tip, so that large surrounding normal areas are not frozen.

Several sized applicators insure the treatment of all such common lesions as verrucae, keratoses, angiomas, lymphangiomas, soft corns and nevi.

DESCRIPTION OF APPARATUS [1]

Solidified carbon dioxide is formed by piercing a cartridge of carbon dioxide gas and allowing the gas to flow into a cone shaped expansion chamber (fig. 2). A patented tamping device, using the excess gas as a motivating force, tamps the snow as it is formed into a compact cone. The lower part of the machine may be unscrewed from the upper part, thus enabling the operator to release the cone of snow from its mold.

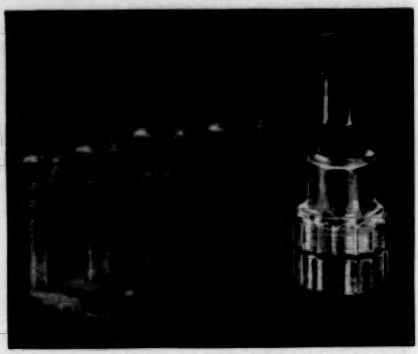

Fig. 2.—Machine for forming solidified carbon dioxide with plastic applicator.

A series of applicators with diameters varying in size from 5/32 inch to ¾ inch is provided. The snow is forced into the applicators at the tip of the sleeve and is compressed into a hard pencil by means of a plunger or rammer. This is specially beveled so that the pencil formed will not drop out of the sleeve but must be pressed out gently. The operator is then able to regulate the speed of renewal of the snow at the active tip and adjust the pressure necessary for refrigeration.

The machine and the applicators are made of a light, strong and durable plastic. The nature of the material is such that it is also completely insulating and assures a 100 per cent efficiency and volume of snow obtained at the tip.

The snow machine, applicators and a box of twenty-four cartridges are contained in a kit 6½ inches square, which may be put in a physician's bag and conveniently carried to any desired point. Refill cartridges in boxes of twenty-four are easily obtained when needed to replace those in the kit.

Summit Medical Group.

ACUTE APPENDICITIS WITH GENERALIZED PERITONITIS

TREATED BY INTRAVENOUS AND DIRECT INTRAPERITONEAL INJECTION OF A SULFONAMIDE DERIVATIVE

JULIUS GOTTESMAN, M.D., AND HAROLD GOLDBERG, M.D., NEW YORK

The use of sulfonamide derivatives in the treatment of peritonitis of appendical origin was first reported in 1939 by Corry, Brewer and Nicol.[1] Further studies were made by Ravdin, Rhoads and Lockwood[2] and Michel.[3] These authors, administering the drug intravenously, reported striking improvement in the mortality and morbidity of this disease in their series of cases. In 1941 Thompson, Brabson and Walker[4] suggested that the drug be introduced directly into the abdominal cavity at the time of operation. Rea[5] concluded that the sulfonamides are most effective when introduced directly into the peritoneal cavity.

REPORT OF CASE

B. P., a Negro child aged 2½ years, was admitted to the surgical service of Sydenham Hospital on July 25, 1941 with a four day history of vomiting, abdominal pains and constipation. Prior to hospitalization the child had been treated with cathartics and enemas.

On the first examination the patient did not appear to be acutely ill. The temperature was 102 F. The general physical examination was negative except for slight voluntary rigidity in both lower quadrants without any definite evidence of peritoneal irritation. The rectal examination was negative. The blood showed slight leukocytosis (13,400 cells). The urine was normal. No definite diagnosis could be established on admission.

During the first two days of hospitalization the temperature ranged between 99 and 102 F. On the fourth day following admission (eighth day of illness) vomiting recurred and the temperature rose to 102.6 F. The following day a sudden change for the worse occurred; the patient became listless and the vomiting fecal and projectile. The abdomen was distended and diffusely rigid and tender. The white cell count rose to 14,200 with 41 per cent band forms. A roentgenogram of the abdomen showed fluid levels of intestinal obstruction. A definite diagnosis of acute appendicitis with generalized peritonitis was now made, and because of the patient's poor condition and the duration of symptoms (nine days) conservative treatment was decided on. Continuous gastric suction through a Levin tube was begun and sodium sulfathiazole, saline and dextrose solution given intravenously.

The following day (tenth day of illness) a diagnostic abdominal puncture was made and a large amount of purulent fluid aspirated (250 cc.). Through the aspirating needle 5 Gm. of sulfapyridine in 100 cc. of distilled water was injected directly into the peritoneal cavity. The aspirated pus on culture was found to contain Bacillus coli and hemolytic streptococci. The intraperitoneal dose was repeated two days later. The child also continued to receive sodium sulfathiazole and saline and dextrose solution intravenously and also was given a transfusion of citrated whole blood on two occasions.

Two days after the second intraperitoneal injection a definite improvement in the child's general condition was obvious. The temperature fell to normal and the patient had spontaneous bowel movements. On the eighteenth day of illness the temperature rose again and the abdomen became distended. Examination at this time revealed a pelvic mass which could be palpated rectally. This pelvic abscess ruptured spontaneously through the rectum on the twenty-second day of illness, after which the child made an uneventful recovery and was discharged well.

The child was readmitted to the surgical service on October 15 with all the classic signs of acute appendicitis. A laparotomy was performed and an acutely inflamed appendix removed. The specimen showed evidence of previous rupture. Adhesions were found in the region of the cecum but elsewhere the abdomen was free of all signs of the previous attack of peritonitis.

SUMMARY AND CONCLUSIONS

In the case of acute appendicitis with generalized peritonitis here presented an operation in our opinion was contraindicated. The patient was treated by intravenous administration of sodium sulfathiazole, saline and dextrose solution, by transfusion of citrated whole blood and by the direct intraperitoneal injection of sulfapyridine. The child after the spontaneous evacuation of a pelvic abscess through the rectum recovered and was discharged cured. About two months later the child was readmitted with all the classic signs of acute appendicitis. An acutely inflamed appendix was removed which showed evidence of previous rupture. We are not aware of any reference in the literature to this method of administration.

1. Apparatus made by Specialties Manufacturing Company, Inc., Bloomfield, N. J.

From the Surgical Service of Sydenham Hospital.

1. Corry, D. C.; Brewer, A. C., and Nicol, C.: Brit. M. J. 2:561 (Sept. 9) 1939.

2. Ravdin, I. S.; Rhoads, J. E., and Lockwood, J. S.: Ann. Surg. 111:53 (Jan.) 1940.

3. Michel, M. L.: New Orleans M. & S. J. 93:419 (Feb.) 1941.

4. Thompson, J. E.; Brabson, J. A., and Walker, J. M.: Surg., Gynec. & Obst. 72:722 (April) 1941.

5. Rea, C. E.: Surg., Gynec. & Obst. 73:193 (Aug.) 1941.

We believe that the direct intraperitoneal method of sulfonamide medication could be of value in the treatment of various types of peritonitis, such as pneumococcic, gonococcic or streptococcic peritonitis, or in cases of postappendical peritonitis in which operation is contraindicated or deferred.

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Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE. HOWARD A. CARTER, Secretary.

ACCEPTANCE OF ULTRAVIOLET LAMPS FOR DISINFECTING PURPOSES

After due consideration of the present status of the use of ultraviolet radiation as a germicide, in consultation with bacteriologists, physicists, chemists, ventilating engineers and other scientists, the Council on Physical Therapy has adopted the following regulations for acceptance of ultraviolet lamps for use as an adjuvant in the disinfection of air.

In this connection it is to be noted that a lamp used for germicidal purposes is a single unit in an installation, and that compliance of the ultraviolet output of a single lamp unit with the Council's requirements does not insure adequate radiant disinfection or the safety of the occupants of the room in which an installation of such lamps is in actual use. Obviously the manufacturer and distributor of such lamps must assume some responsibility for the adequacy of the lamp installation for purposes of radiant disinfection of the air and for the adequacy of the protection from injury of the occupants of the space irradiated. Concerning these questions the Council cannot undertake supervision or assume responsibility for the satisfactory performance of any particular installation.

Obviously in a school room occupied less than eight hours a day by teachers and pupils in apparently good health, the intensity of the ultraviolet irradiation at the level of the desks may be different from that required in a scarlet fever ward requiring continuous operation of the lamps to insure adequate disinfection. In both cases the total amount of direct and scattered ultraviolet radiation incident on the occupants must be kept below the level that will produce conjunctivitis, erythema and any other (at present unforeseen) injurious physiologic effects that may arise from prolonged irradiation. This requirement should be met by a suitable arrangement of the lamp fixtures and light baffles and not by requiring the pupil to wear glasses and a special covering of the parts of the body (face, hands) normally uncovered.

In this connection it is to be noted that the efficiency of the emission line 2,537A (angstroms) in producing an erythema is very high and, in contrast, the efficiency of this emission line in producing tan is very low. As a result of this slow acting protective mechanism (tanning skin pigmentation) the irradiated occupant of the room may suffer severe burns. The data governing the Council's Acceptance of Sun Lamps show that an intensity of 36 microwatts per square centimeter can produce an erythema in fifteen minutes. If the reciprocity law holds for very low intensities and long exposures, then the total intensity of the ultraviolet radiation (diffusely reflected from the walls and fixtures and emanating directly from the lamp) incident on the occupant for seven hours or less should not exceed five-tenths microwatt per square centimeter (0.5 μW/cm.^{2}) and for continuous exposure (twenty-four hours a day) should not exceed 0.1 microwatt per square centimeter of wavelength 2,537A. How to design the lamp installation to meet the requirements for adequate disinfection of a room and at the same time protect the occupants is a problem for solution by the sanitary engineer.

At the present juncture the design and installation of ultraviolet lamps in their fixtures for disinfecting purposes is empirical and the adequacy of disinfection by any given installation of lamps must be judged by clinical experience. For example, clinical evidence has been submitted to the Council showing that, in a scarlet fever ward (size about 60 by 27 by 11 feet) containing sixteen cubicles, four lamp units, each one emitting a radiant flux of 30 microwatts per square centimeter at 1 meter, were found inadequate; but eight lamp units in the ward, each unit protecting two cubicles, and a ninth unit at the entrance, prevented cross infection. This is a rather high intensity (requiring twenty minutes calculated time to produce a minimum perceptible erythema) incident on a person of average height, standing directly under a lamp fixture suspended from a ceiling of average height. A greater number of lamps, each one of lower ultraviolet intensity (say 20 microwatts per square centimeter at 1 meter) and lower power input, more evenly distributed throughout the room should be safer and equally efficient in disinfecting the air. This is a matter of engineering design, beyond the scope of the Council's purview.

PHYSICAL DATA ON GERMICIDAL LAMPS

Experimentally, applying equal amounts of energy of different wavelengths, it is found that the spectral band at 2,652A appears to produce the maximum bactericidal action and that the emission band at 2,537A is only about 70 per cent as effective. This difference in effectiveness is negligible in the present considerations because in readily obtainable sources of germicidal radiation, especially in the low vapor pressure (cold cathode) mercury discharge tube, which is well adapted for killing microorganisms, the ultraviolet radiant power of wavelength 2,652A is less than 0.2 per cent of that of wavelength 2,537A, the resonance emission band that dominates the whole ultraviolet spectrum of this type of lamp.

About 90 per cent or more of the total biologically effective ultraviolet radiation of wavelengths shorter than 3,132A emitted by the low pressure mercury discharge (whether in quartz or in a transparent glass tube) is concentrated in the emission line at 2,537A. For this reason the emission line at 2,537A, logically and by common consent, is taken as the standard of homogeneous ultraviolet radiation for evaluating the ultraviolet output of germicidal lamps, just as the wavelength 2,967A in the high vapor pressure (hot cathode) mercury arc is taken as the standard of homogeneous ultraviolet erythematogenic and antirachitic radiation in evaluating the ultraviolet output of therapeutic lamps.

The low pressure mercury discharge in a suitable glass tube or in a suitably filter jacketed quartz tube which readily transmits the strong, highly germicidal emission line at 2,537A but is opaque to wavelengths shorter than about 2,200A (that generate ozone) appears suitable to supplement other means of disinfection when operated under controlled conditions and limited to certain types of applications.

From the evidence available it appears that a minimum of 5,000 to 10,000 microwatt seconds per square centimeter (μW sec./cm.^{2} or 50,000 to 100,000 ergs/cm.^{2}) of homogeneous radiation of wavelength 2,537A is required to produce adequate (practically 100 per cent) killing of micro-organisms, especially bacteria. With an exposure of fifty to one hundred seconds this will require an intensity of 100 microwatts per square centimeter.

The Council has adopted 100 microwatts per square centimeter of homogeneous radiation of wavelength 2,537 angstroms as the unit of germicidal intensity (G. U.); that is, 1 G. U. = 100 μW/cm.^{2} of radiation of wavelength 2,537A.

Since the ultraviolet emission from the low vapor pressure mercury discharge tube is practically homogeneous radiation of wavelength 2,537A, such a lamp can be readily calibrated in absolute valve and used as a standard. The intensity at 1 meter may be only one fifth of the Council's unit, or 20 microwatts per square centimeter, for safety to the occupants. This will require a minimum exposure of two hundred and fifty to five hundred seconds for adequate disinfection, which will depend on the rate of circulation and average distance of the air in front of the lamp. Evidence has been submitted to the Council

showing that cross infection in a contagious ward may be prevented by using a sufficient number of lamp units, each unit having an intensity of 30 microwatts per square centimeter at a distance of 1 meter from the burner. This will require an exposure of one hundred and sixty-seven to three hundred and thirty-four seconds for adequate disinfection, which implies a slow movement of the air in front of the lamp installation.

SCOPE OF THE COUNCIL'S ACCEPTANCE OF ULTRAVIOLET LAMPS FOR DISINFECTING PURPOSES

The Council has given careful consideration to the feeling, expressed by manufacturers vitally concerned in the matter, that the general acceptance of the use of ultraviolet radiation as a sanitary agent may necessitate some form of regulation, and that ultraviolet generating units offered to the public and medical profession may be classed with antiseptic agents requiring a degree of control of their potency and keeping qualities.

Under this caption is given an analysis of various proposed applications of ultraviolet radiation as a disinfectant and a statement of the specific applications that appear to fall within the Council's purview.

The advantages and disadvantages of the use of germicidal ultraviolet radiation for sterilizing purposes are summarized in the recent (1941) issue of "The Chemical Action of Ultraviolet Rays," by Ellis and Wells, second edition, by Francis F. Heyroth (see p. 718, "The Sterilization of Water"). L. R. Koller (*J. Applied Physics* **10**:629, 1939) found that while sterilization of glassware and dishes is possible by means of ultraviolet radiation it was very important to start with fairly clean surfaces. Practically the same results are reported in a recent investigation by J. W. Appling and F. W. Tanner on the "Bactericidal Effect of Ultraviolet Rays on Micro-Organisms on Restaurant Glassware" (*Proc. Soc. Exper. Biol. & Med.* **47**:51, 1941). While they noted decided improvement on irradiation, complete sterilization did not result in every case. In this connection reference is made to an editorial on "Disinfection by Light" (*Brit. M. J.* **2**:707 [Nov. 23] 1940) showing that much remains to be done in studying the capacity of such lamps to reduce the dangerous bacterial content of air, not only under controlled laboratory conditions, but also in the more difficult and varied circumstances of practical use.

In this connection it is important to note that in order to kill a micro-organism a direct hit by ultraviolet rays of sufficient intensity is required. This is difficult to accomplish on the edge of a drinking cup, also in a liquid containing suspended matter or in air laden with dust particles that shield the organism. As an effective germicide a product must effect practically 100 per cent killing. Ultraviolet germicidal rays cannot penetrate deeply and hence may be absorbed by finger marks or other contamination on a drinking cup. The ultraviolet germicidal lamp, therefore, appears to be an uncertain means of sterilizing solid objects (drinking cups, combs, brushes, shaving utensils, shoes, toilet seats) even if irradiation of the whole surface is possible.

At this time satisfactory evidence is not available to warrant acceptance of ultraviolet lamps by the Council for disinfecting solids. Furthermore, the Council is not fully convinced at the present time that it should assume the responsibility in this matter. The whole subject is too new, too complex and apparently too uncertain where virulent organisms (e. g., typhoid) may be concerned in spreading epidemics.

Some evidence seems to indicate that the ultraviolet germicidal lamp can be used for sterilizing water, beverages and the like but only after adequate removal of suspended material; and it is applicable only to liquids which are highly transparent to ultraviolet germicidal radiation.

In a few cases in which chemical methods of sterilization of water may be harmful, as for example for surgical purposes (mentioned by Ellis and Wells), under certain conditions irradiation with ultraviolet lamps is reported to be useful. This acceptance is not concerned with such applications, which do not appear to be very wide. Moreover, it is not clear wherein sterilization by ultraviolet rays is superior to boiling or distillation of the water used.

The use of ultraviolet radiation for disinfecting air in industrial plants, barracks, school rooms, assembly halls, refrigerators and so on also appears to be outside the Council's purview. In fact, at this juncture the whole question of the use of ultraviolet radiation for disinfecting purposes is too complex and too little understood for the Council to do more than attempt to keep the medical profession informed regarding particular ultraviolet lamps that are acceptable for use in this method of disinfecting air in hospitals, nurseries and operating rooms (relatively free from dust) as practiced by present day empirical methods.

TENTATIVE REQUIREMENTS FOR ACCEPTANCE OF ULTRAVIOLET LAMPS FOR DISINFECTING AIR

Clinical evidence submitted to the Council shows that under properly controlled conditions killing of air borne micro-organisms by ultraviolet rays may be used to supplement other methods of disinfecting air for prevention of cross infection in contagious wards in nurseries and hospitals, and for reducing air borne infection of wounds in operating rooms.

In considering ultraviolet generators for disinfecting purposes the Council makes no distinction between lamps for use in air conditioning ducts and lamps for use in open rooms in which there is only a slow circulation of air. In both cases a sufficient number of lamps must be provided to insure adequate disinfection of the air as determined by approved culture tests or other accepted procedures.

To comply with the Council's requirements the ultraviolet spectral energy distribution of the germicidal lamp shall be comparable in lethal effectiveness with the low vapor pressure mercury discharge tube, in which the dominant radiation is of wavelength 2,537A.

The minimum intensity at right angles to and at a distance of 1 meter from the plane of the lamp tube in its fixture shall not be less than the germicidal equivalent of 20 microwatts per square centimeter of homogeneous radiation of wavelength 2,537A. The useful life of the lamp shall not be less than four thousand hours. During this period the ultraviolet output shall not fall below the herein specified minimum intensity. To meet this requirement the lamp may be provided with a voltage regulator to compensate for the decrease in intensity of ultraviolet with usage; or the lamp may emit a sufficient excess of ultraviolet radiation when new, so that the output shall not fall below the specified minimum value (20 μW/cm.^{2} at 1 m.) in less than four thousand hours' operation. In either case the installation shall be provided with adequate safeguards against overexposure of the occupants of the room to ultraviolet radiation. The burner of the lamp shall be of glass or of suitably filter jacketed quartz, highly transparent to the emission line at 2,537A, and opaque to radiation of wavelengths shorter than 2,200A, to prevent the generation of the injurious amount of ozone, largely produced by these short wavelengths. To insure compliance with these requirements the lamp may consist of one, two or three tubes, mounted and operated as a unit.

For consideration of acceptance by the Council, the manufacturer shall submit a lamp unit in its fixture, permanently marked as to its useful life, and its radiant flux in microwatts per square centimeter of wavelength 2,537A, at 1 meter under the normal power input used to insure a useful life of four thousand hours or more. In addition the manufacturer shall submit satisfactory clinical evidence, obtained over a period of not less than four winter months, of the effectiveness of an installation of such lamps in maintaining sterilized conditions in the space (hospital, nursery) subjected to radiant disinfection. For statistical purposes in improving installations, included in this evidence (for the present at least) is to be a statement of (1) the size of the room and the average number of occupants (and their ailments), (2) the number and arrangement of the lamp units, (3) kind and amount of ventilation and (4) the procedure to determine and maintain the intensity above the minimum level during the useful life of the lamp.

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SATURDAY, JANUARY 24, 1942

PROCUREMENT AND ASSIGNMENT SERVICE MAKES RECOMMENDATIONS TO ALL PHYSICIANS

Under the heading Medical Preparedness in this issue of THE JOURNAL is an official statement from the board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. Here are recommendations to all physicians with reference to the places they may occupy in the national emergency. There are directions addressed specifically to (1) medical students, (2) recent graduates, (3) interns who have completed twelve months in a hospital, (4) members of staffs of hospitals, (5) all physicians under 45 years of age and (6) all physicians over 45 years of age.

These recommendations, it will be observed, do not state specifically that any group, either medical students, interns or physicians, will be deferred by draft boards. Congress did not provide for blanket deferment of any group. However, authorities in the Selective Service have indicated their desire to cooperate with the Procurement and Assignment Service; any bona fide medical student in good standing or any physician called by the draft board may file an appeal.

The offices of the surgeon generals of the Army and of the Navy have arranged to permit junior and senior students who have enrolled in the medical administrative corps in the Army or who have obtained ensign commissions in the United States Naval Reserve to complete their medical education. Obviously the Procurement and Assignment Service must depend on the assurances of the Selective Service System and of the Army and Navy for proper action in these matters.

Apparently some physicians, perhaps even many, have been confused by the publication of the enrolment blanks which appeared in previous issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and in the state journals and by subsequent changes in procedure. Let us bear in mind that conditions change from week to week, almost from day to day. A procedure is initiated to obtain a certain effect and to supply a certain need. When the effect is obtained and the need is satisfied, that procedure becomes obsolete. The blanks which were published in THE JOURNAL served to bring in enough applications to meet the immediate needs of the Army and Navy Medical Corps. Every one of the men under 36 years of age who filled out that blank has been considered to be a volunteer available for immediate service. Nevertheless, all names are being checked with the roster at the headquarters office of the American Medical Association. Those who are especially qualified in certain specialties are being given special consideration for the kind of work for which they are particularly fitted.

Apparently a number of physicians, even some of advanced age, felt that in filling out these blanks they were making themselves available for immediate service with the Army or Navy or in some civilian capacity. Some are resentful that they have not been called; others are fearful that they may be called. Hence it is recommended that every physician, whether or not he has filled out any enrolment blank previously, should read most carefully the announcements which appear in this issue and which are specifically directed to physicians of definite age groups. Within the near future an enrolment blank will again be sent to every physician in the United States under the auspices of the Procurement and Assignment Service. This will give opportunity for every physician in the United States to enroll himself with that service as ready to serve a specific need for which he is fitted. The Procurement and Assignment Service proposes also to make available to every physician who does enroll a certificate and a numbered button which will indicate to every one that he is a man who has offered to do his utmost for our government in its time of emergency.

Also under preparation is a statement consisting of questions and answers which have come from many physicians in many parts of the country. This statement will be published in THE JOURNAL just as soon as it is available, and reprints will be made available for those who wish to secure them.

SYNERGIC TOXINS OF DIPHTHERIA GRAVIS

Striking indeed is the contrast between the optimism that prevailed during the first three decades of the twentieth century with regard to the successful serologic mastery of diphtheria and the pessimism and perplexity that characterize the present decade. The first indication of this growing pessimism dates from 1927, when Deicher and Agulnik [1] recorded a steady rise in diphtheria mortality in the Virchow Krankenhaus, Berlin, the 5 per cent mortality of 1924 having increased to 26.7 per cent. Within two years similar epidemics of clinically refractory cases were reported from Czechoslovakia, France, Italy and Rumania, with later spread to the British Isles.[2]

The newly recognized malignant diphtheria is characterized by hypertoxicity. There is relatively little membrane formation in the throat but severe local edema and necrosis, "bullneck," albuminuria, subcutaneous and submucous hemorrhages, and neurologic complications. The bullneck is due to massive cellulitis, with only minor enlargements of the cervical lymph nodes. Among the necropsy appearances are renal, cardiac, adrenal and neurologic degenerations, with occasional focal necroses in the spleen. Therapeutically the hypertoxic cases are almost totally refractory to diphtheria antitoxin, twenty to one hundred times the usual therapeutic dose having been injected intravenously without demonstrable curative effects. Moreover, diphtheria gravis is apparently not prevented by artificial immunization with any of the prophylactic agents in current use.

Following recognition of this refractory type of diphtheria a voluminous European literature was developed, but without a definite lead to research till the disease reached its peak in the British Isles. In the course of routine laboratory examinations, Anderson and his colleagues [3] of the University of Leeds then gained the impression that a new and relatively stable type of the diphtheria bacillus was involved. The culture medium giving the sharpest differentiation is heated blood agar ("chocolate") containing 0.04 per cent of potassium tellurite. It is essential that the meat extract used in the preparation of this tellurite chocolate medium should not be heated above 75 C. but sterilized by filtration.

The characteristic diphtheria gravis or "Michaelmas daisy" colony on this medium is dark gray or gray black with distinctive petal-like radiations about a deeply stained center. No other bacterium thus far studied by Anderson and his co-workers produces a colony at all closely resembling this. For all strains of the diphtheria bacillus exhibiting this colony structure, Anderson suggests the name B. diphtheriae gravis, with B. diphtheriae mitis reserved for the conventional diphtheria colony. Under this nomenclature the Park-Williams strain 8 would be classified as B. diphtheriae intermedius, the strain being half way between mitis and gravis.

Clinical applications of this new classification were afterward made by the Zinnemanns,[4] who examined 1,300 clinical cases during the 1936 Ukrainian epidemic. They found that 96 per cent of all cultures recovered during life from all fatal cases in this epidemic were of the gravis type. The usual commercial diphtheria antitoxin would protect guinea pigs equally well against this toxin, and a special antitoxin prepared by immunizing animals against gravis filtrates was not found superior to the ordinary commercial product.

From these results it became evident that there is something radically wrong in conventional theory or technic. One conceivable error arises from the routine method of producing diphtheria toxin. In this technic the organism is grown for a long time in a fluid medium in such a way as to favor oxidation for the production of growth energy. In the infected throat, in contrast, the bacillus is grown on a solid medium and presumably uses tissue carbohydrates as its source of energy. To imitate the natural method of toxin production, O'Meara [5] grew gravis strains for forty-eight hours on Loeffler's blood serum. The micro-organisms were then suspended in saline solution and allowed to stand about twenty-four hours. The resulting saline extract (or autolysate) was then freed from organisms by centrifugation followed by Berkefeld filtration.

Inoculated subcutaneously in 1 to 2 cc. doses, such extracts never cause more than a slight local temporary edema in guinea pigs. In 5 cc. doses, however, the extracts occasionally cause death, with the usual postmortem appearances of death from diphtheria toxin. When the gravis extract is inoculated in 0.2 cc. doses intracutaneously, however, it is found to have distinctive properties. This is shown by immediate wheal production, usually reaching about an inch in diameter by the end of thirty minutes. Within two hours a red flush originating at the center has usually spread outward to cover the entire swelling.

If the saline extract is centrifuged but not filtered, so as to contain a certain amount of bacterial detritus, an even more pronounced intradermal reaction is noted. Within two or three days a central area of necrosis half an inch in diameter may be formed. In control tests with mitis or intermedius strains, little or no immediate cutaneous reaction is noted and the inclusion of unfiltered detritus does not enhance the intracutaneous toxicity. From this and other evidence O'Meara concludes that gravis strains grown on a solid medium form little or no routine diphtheria toxin but do form a product having properties analogous to those of the

1. Deicher, H., and Agulnik, F.: Deutsche med. Wchnschr. 53: 825 (May 13) 1927.
2. McLeod, J. W.; Orr, J. W., and Woodcock, H. E. de C.: J. Path. & Bact. 48: 99 (Jan.) 1939.
3. Anderson, J. S.; Happold, F. C.; McLeod, J. W., and Thomson, J. G.: J. Path. & Bact. 34: 667 (Sept.) 1931.
4. Zinnemann, K., and Zinnemann, I.: J. Path. & Bact. 48: 155 (Jan.) 1939.
5. O'Meara, R. A.: J. Path. & Bact. 51: 317 (Nov.) 1940.

Duran-Reynals[6] "spreading factor" formed from invasive strains of staphyloccoccus or streptococcus.

The O'Meara synergic theory, however, was deduced from subcutaneous tests in which gravis extract was added to routine diphtheria toxin. Injected subcutaneously at the central part of the guinea pig abdomen, the mixture causes an enormous edematous swelling, often extending from the neck to the pubis. A large necrotic slough eventually forms. When the dose is sufficiently large to cause death, the time of death is determined by the routine toxin dose and is in no way related to the amount of gravis extract. Necropsy appearances usually include edema of the lungs, pleural effusion and pale adrenal glands, with an occasional hemorrhage in the spleen.

From such evidence O'Meara concludes that neither the routine diphtheria toxin nor the saline extract alone is able to produce the classic picture of diphtheria gravis but that the two products acting together are able to do so. He refers to these two synergic toxins as substance A and substance B. Toxin A is presumably identical with the routine mitis exotoxin, while B occurs in highest concentration as gravis endotoxin. These two substances acting together constitute fully potentiated diphtheria toxin. Two antibodies, anti A and anti B, are presumably necessary to overcome this synergic effect.

O'Meara finds this theory a logical explanation for the curious anomalies in toxin-antitoxin titration, such as the "Ehrlich phenomenon," the "Danysz phenomenon" and other nonagreements with the laws of multiple proportion. Proof that B. diphtheriae mitis produces a toxin consisting almost solely in A substance offers a logical explanation for the therapeutic efficiency of diphtheria antitoxin in the treatment of milder clinical cases. According to O'Meara's experimental data commercial antiserums consist almost exclusively of anti A toxin, the anti B component conceivably being lost during the process of manufacture. Proof that B. diphtheriae gravis forms a superabundance of B toxin, which acts as a vector for a Duran-Reynals spreading factor, offers a logical explanation from the clinical failure of routine antitoxin serum in the treatment of malignant cases. Broader implications of O'Meara's theory arise from the fact that failures to obey the law of multiple proportions are not restricted to diphtheria toxin-antitoxin reactions but have also been described for other bacterial toxins.

According to a war censor release,[7] diphtheria gravis was introduced into Halifax, Nova Scotia, recently but has been checked and its local recurrence made unlikely by vigorous cooperation between the local health authorities and an expedition of eleven experts sent from the Harvard Medical School. Sulfadiazine plus routine antiserum were used in fighting this epidemic. Sulfadiazine was administered to all carriers.

6. Duran-Reynals, Francese: J. Exper. Med. 58:161 (Aug.) 1933.
7. Science Supplement 93:9 (March 28) 1941.

VITAMINS FOR GRAY HAIR

"My hair is gray but not with years, nor turned it white in a single night." Thus spoke the poet. The phenomenon of sudden or rapid graying of the hair under the stress of fear, anxiety or other deeply disturbing nervous effects is well known. The gradual graying of the hair is also interesting. Many a worker finds difficulty in securing employment because of premature grayness of the hair. The whole process has been a mystery to medical science for many years.

An interesting account by Aleš Hrdlička in his book "The Old Americans" discusses the case of Major A. W. Greely, arctic explorer, who in 1884, toward the end of an exceedingly difficult trip of arctic exploration, had his hair turn completely white. On his return to civilization the whiteness began to disappear gradually and to return to a nearly normal condition. Writing in 1922, General Greely said "When rescued at Cape Sabine in 1884 my hair was entirely white, due probably to the continuous condition of semistarvation from which I suffered for over nine months. Within a year my hair darkened considerably, though it never returned entirely to its original coloring."

This item, written more than fifteen years ago, is strangely apropos in these days when attention is being turned more and more to the relationship of the diet to the graying of hair.

Recent reports in newspapers and magazines assert that the color of the hair can be restored by the administration of vitamins. Most of these reports have centered around the supposed virtues of para-aminobenzoic acid, said to be especially effective in restoring color to the gray hair of persons whose hair has been red. Para-aminobenzoic acid has been isolated from yeast, definitely identified, and is considered to be the substance in yeast extracts which reverses the bacteriostatic effect of sulfanilamide. In the laboratory it has been shown to be a bacterial growth factor. Ansbacher has claimed that it is a growth promoting factor for the chick and a factor which is curative of gray hair which develops in black rats when maintained on certain types of synthetic diets. Sieve[1] has fed doses of 100 mg. twice daily to adults and has reported that after about two months there was darkening of the hair in all instances. Confirmatory reports by qualified investigators have not yet appeared. Because of the publicity that has been given to the work, many patients have been led to request treatment by their physicians.

A diversity of opinion still prevails about the relation between diet and graying of hair in animals. Most investigators have been unable to verify Ansbacher's observation that para-aminobenzoic acid is related in any way with the phenomenon of graying of hair in animals. The recent report of Unna, Richards and

1. Sieve, B. F.: Science 94:257 (Sept. 12) 1941.

Sampson [2] of the Merck Institute states that black rats which are fed a synthetic diet deficient in pantothenic acid become gray in about four to six weeks. Pantothenic acid at a level of 100 micrograms a day will prevent or cure this condition. Para-aminobenzoic acid in these experiments was entirely ineffective.

Elvehjem and his collaborators [3] substantiated this work in its entirety. Williams [4] found that pantothenic acid was without effect on the graying of hair. György and Poling [5] believe that both pantothenic acid and biotin, another less well known member of the vitamin B complex, are necessary to prevent or cure nutritional achromachia—loss of hair color—in animals. Their lack of success has been attributed to the fact that the supplementary feeding of pantothenic acid used was too small.

Over ten years ago it was observed by a number of biochemists interested in nutritional anemia that black haired rats became gray on a milk diet. When the anemia was developed on this diet it was cured by administration of iron and copper and the color of the hair likewise was restored to normal. Agnes Fay Morgan [6] and others showed in 1938 that a similar condition of gray hair could be produced in animals by a diet that did not contain all factors of the vitamin B complex. Thus came the conviction that vitamins may be concerned with this phenomenon. Even yet the experimental evidence is conflicting.

Is para-aminobenzoic acid really concerned with the maintenance of normal dark hair color in man? If gray hair is darkened by administration of relatively large amounts of this substance, the effect may be due simply to the excretion into the hair of some paraphenylenediamine-like compound which acts like a dye. Not all people whose hair has turned gray are necessarily suffering from a demonstrable vitamin deficiency. Before further experimental work is done on human beings it would be well to exhaust the possibilities of animal experimentation to ascertain the metabolic function of these substances that are present in yeast. Further, in view of the paucity of information about the functions of para-aminobenzoic acid, it would be highly desirable to know something about the metabolic history of this chemical in the body before relatively large doses are administered to patients over comparatively long periods of time. Finally, the evidence in behalf of some definite relationship between intake of vitamins and graying of hair is far more convincing for pantothenic acid than for para-aminobenzoic acid.

2. Unna, K.; Richards, G. V., and Sampson, W. L.: Studies on Nutritional Achromotrichia in Rats, J. Nutrition **22**: 553-563 (Dec.) 1941.

3. Henderson, L. M.; McIntire, J. M.; Waisman, H. A., and Elvehjem, C. A.: Pantothenic Acid in the Nutrition of the Rat, J. Nutrition **22**: 47-58 (Jan.) 1942.

4. Williams, R. R.: Inefficacy of Pantothenic Acid Against the Graying of Fur, Science **92**: 561-562 (Dec. 13) 1940.

5. György, Paul, and Poling, C. E.: Further Experiments on Nutritional Achromotrichia in Rats and Mice, Proc. Soc. Exper. Biol. & Med. **45**: 773-776 (Dec.) 1940.

6. Morgan, Agnes F.; Cook, B. B., and Davison, H. G.: Vitamin B_2 Deficiencies as Affected by Dietary Carbohydrate, J. Nutrition, **18**: 27-43 (Jan.) 1938.

Current Comment

FACILITIES FOR SELECTIVE SERVICE REGISTRATION AT ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Elsewhere in this issue appears the program of the Congress on Medical Education and Licensure to be held February 16-17 in Chicago. Special emphasis is placed in this year's program on medical preparedness as it affects the training of physicians. The acceleration of the medical curriculum will be a major topic of discussion. Physicians or others living outside of Chicago who attend and who are required to register under the Selective Service regulations on February 16 can do so between 7 a. m. and 9 p. m. at the congress in the Palmer House. All citizens between the ages of 20 and 44 inclusive who were not registered on Oct. 16, 1940 or on July 1, 1941 are required to register.

THERAPEUTIC RESEARCH CORPORATION OF GREAT BRITAIN LIMITED

The formation of the Therapeutic Research Corporation of Great Britain Limited has been announced by five leading British pharmaceutic manufacturers. The principal objects of the T. R. C., as it is to be known, are:

To provide for the coordination and extension of research in matters of common interest with a view to accelerating the discovery of new substances for the service of therapeutic and preventive medicine, to ensure proper collaboration with medical, dental and veterinary practitioners in the introduction of new medicinal substances and to assist in the advancement of the art of medicine by the subsidization of research on a broader and more rational basis than has so far been possible in the British pharmaceutical industry.

To provide for the pooling of manufacturing facilities, where desirable.

To enable the industry to cooperate more effectively in national planning by presenting to the government through its appropriate medical, dental, veterinary, scientific and technical organizations the pooled knowledge and facilities acquired by the constituent companies in the field of therapeutic research.

Products evolved as a result of research sponsored by the corporation will be marketed and sold by the constituent companies under a common name. The T. R. C. will assist wherever practicable in simplifying the nomenclature of new medicinal substances. The announcement is significant, since it points the way to a desirable trend in drug research and marketing. Apparently the pooling of research interests involved in the formation of the organization is not intended to be merely a wartime expedient. While a similar idea had been frequently advocated in this country,[1] the first step in this direction has been taken in Great Britain. The functioning of the T. R. C. and its influence on drug research will no doubt influence greatly the attitudes of both the medical profession and the drug manufacturers of America.

1. Klumpp, T. G.: The Metamorphosis of Drug Research, Science **94**: 99 (Aug. 1) 1941.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

RECOMMENDATIONS TO ALL PHYSICIANS WITH REFERENCE TO THE NATIONAL EMERGENCY

All inquiries concerning the Procurement and Assignment Service should be sent to the Executive Officer, 5654 Social Security Building, Fourth and Independence avenues S.W., Washington, D. C., and not to individual members of the Directing Board or of committees thereof.

I. MEDICAL STUDENTS

A. All students holding letters of acceptance from deans for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in class II-A as a medical student. If local boards classify such students in class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the board of appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the state director and if necessary to the national director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissions are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools who have not done so should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H. V. (P.) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the corps area surgeon of the corps area in which the applicant resides, and applications for commission in the Navy should be made to the commandant of the naval district in which the applicant resides. Medical R. O. T. C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, on graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Act. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least twelve months of internship.

II. RECENT GRADUATES

On successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H. V. (P.), U. S. Navy Reserve, should make immediate application to the commandant

of his naval district for commission as Lieutenant (J. G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieutenant (J. G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. TWELVE MONTHS' INTERNS

All interns should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as a Lieutenant (J. G.), United States Navy or Navy Reserve. On completion of twelve months' internship, except in rare instances in which the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service acts.

IV. HOSPITAL STAFF MEMBERS

Interns with more than twelve months of internship, assistant residents, fellows, residents, junior staff members and staff members under the age of 45 fall within the provisions of the Selective Service acts, which provide that all men between the ages of 20 and 45 are liable for military service. All such men holding Army commissions are subject to call at any time and only temporary deferment is possible, on approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only on approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the executive order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available to the Army, Navy, governmental, industrial or civil agencies requiring their services for the duration of the war.

V. ALL PHYSICIANS UNDER FORTY-FIVE

All male physicians under 45 are liable for military service, and those who do not hold commissions are subject to induction under the Selective Service acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are (*a*) over 45, (*b*) physicians under 45 who are physically disqualified for military service, (*c*) women physicians and (*d*) instructors and those engaged in research who do not possess an M.D. degree but whose utilization would make available a physician for military service.

Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be dislocated for the duration of the national emergency.

VI. ALL PHYSICIANS OVER FORTY-FIVE

All physicians over 45 will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those agencies.

The maximal age for original appointment in the Army of the United States is 55. The maximal age for original appointment in the Naval Reserve is 50 years of age.

FRANK H. LAHEY, M.D., Chairman.
HARVEY B. STONE, M.D.
JAMES E. PAULLIN, M.D.
HAROLD S. DIEHL, M.D.
C. WILLARD CAMALIER, D.D.S.
SAM F. SEELEY, M.D., Executive Officer.

PROTECTION OF CIVIL RIGHTS OF PERSONS IN MILITARY SERVICE

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION

Designed to protect from impairment the civil rights of all members of the Army, Navy, Marine Corps, Coast Guard and all members of the United States Public Health Service detailed by proper authority for duty with the Army or Navy, a law was approved by the President, Oct. 17, 1940, commonly referred to as the Soldiers' and Sailors' Civil Relief Act of 1940. In substance, this law is an up-to-date revision of a similar enactment passed during the first world war, and its fundamental purpose is to free persons in the military service from harassment and injury to their civil rights during their term of military service and thus to enable them to devote their entire energy to the defense needs of the nation.

The provisions of the law, broadly stated, apply to persons on active duty with any branch of the services mentioned and to those in training or undergoing education under the supervision of the United States preliminary to induction into the military services who (1) may become defendants in a court action, (2) have dependents occupying a dwelling for which the agreed rent does not exceed $80 a month, (3) may have contracted, prior to entry into service, for the purchase of real or personal property on the instalment plan, (4) may have obligations relative to mortgages on real or personal property, (5) may hold policies of life insurance of a face value not in excess of $5,000, (6) may have taxes or assessments on real property falling due, (7) may have initiated or acquired a right to lands owned or controlled by the United States or (8) may become liable for income taxes. Generally the law provides remedies in the form of suspension of proceedings and transactions during the time a person is in the military service only when, in the opinion of the court, such person's opportunity and capacity to perform his civil obligations are impaired by reason of his being in military service.

GENERAL RELIEF

Before any judgment in default may be entered in any court, the plaintiff must file an affidavit showing either that the defendant is not in military service, that he is in such service or that the plaintiff is unable to determine whether or not the defendant is in service, as the case may be. If the absent defendant is in military service, the court must appoint an attorney to represent him and protect his interest. This attorney, however, will have no power to waive any right of the absent defendant or bind him by his acts. Unless it appears that the defendant is not in service, the court may require, as a condition before any judgment is rendered, that the plaintiff file a bond conditioned to indemnify the defendant, if in military service, against any loss or damage that he may suffer by reason of any judgment should the judgment be thereafter set aside in whole or in part.

If judgment is entered against a person while he is in service or within thirty days thereafter, application may be made for a reopening of the case not later than ninety days after the termination of the service, at which time any meritorious or legal defense may be interposed. Vacating, setting aside or reversing any judgment, however, will not impair any right or title acquired by any bona fide purchaser for value under such judgment.

At any stage thereof, any action or proceeding in any court in which a person in military service is involved, as either plaintiff or defendant, may be stayed by the court during the period of such service or within sixty days thereafter. Likewise the execution of any judgment or order entered against a defendant in service may be stayed and any attachment or garnishment of property, money or debts in the hands of another may be vacated or stayed. If an action for the compliance with the terms of any contract is stayed, no fine or penalty will accrue by reason of failure to comply with the terms of such contract during the period of the stay.

Any stay of any action, proceeding, attachment or execution ordered by the court may be ordered for the period of military service and three months thereafter and subject to such terms as may be just, whether as to payment of instalments in such a manner and at such times as the court may fix or otherwise. Where the person in military service is a co-defendant with others, the plaintiffs may nevertheless by leave of court proceed against the others. The period of military service, the law provides, shall not be included in the running of any statutes of limitations.

RENTS

No eviction or distress may be made during the period of military service with respect to any premises for which the agreed rent does not exceed $80 a month, occupied chiefly for dwelling purposes by the wife, children or other dependents of the person in service, except on leave of court. The Secretary of War or the Secretary of the Navy, as the case may be, is empowered, subject to such regulations as he may prescribe, to order an allotment of the pay of a person in military service in reasonable proportion to discharge the rent of premises occupied for dwelling purposes by the wife, children or other dependents of such person. This provision, it will be noted, applies only in connection with the rental of property used chiefly for dwelling purposes. It would seem to be inapplicable to premises used chiefly for office purposes. Legislation has been proposed to extend relief to persons in service in connection with leases executed for offices, but Congressional action on such legislation has not been completed.

INSTALMENT CONTRACTS AND MORTGAGES

No person who prior to the date of approval of the law has received a deposit or instalment of the purchase price under a contract for the purchase of real or personal property from a person who after the date of payment has entered military service may exercise any right or option under the contract to rescind or terminate it or resume possession of the property for nonpayment of any instalment falling due during the period of military service, except by action in a court of competent jurisdiction. The law, however, does not prevent the modification, termination or cancellation of any such contract or prevent the repossession or retention of property purchased or received under the contract, pursuant to a mutual agreement of the parties if such agreement is executed in writing subsequent to the making of the contract and during or after the period of military service of the person concerned. In any court action based on such contract, the court may order the repayment of prior instalments or deposits as a condition of terminating the contract and resuming possession of the contract, may in its discretion order a stay of proceedings for the period of military service and three months thereafter, or may make such other disposition of the case as is equitable to conserve the interests of all parties.

The law specifically provides, however, that no court may stay a proceeding to resume possession of a motor vehicle, tractor or the accessories of either, or for an order of sale thereof, where the property is encumbered by a purchase money mortgage, conditional sales contract or a lease or bailment with a view to purchase, unless the court finds that 50 per cent or more of the purchase price of the property has been paid. In any such proceeding the court may, before entering an order or judgment, require the plaintiff to file a bond to indemnify the defendant against any loss or damage that he may suffer by reason of the judgment should it be set aside in whole or in part.

Similar relief is afforded persons in service in connection with mortgages. The law applies only to obligations originating prior to its approval date and secured by mortgage, deed of trust or other security in the nature of a mortgage on real or personal property owned by a person in military service at the commencement of the period of service and still so owned by him.

INSURANCE PREMIUMS

With respect to life insurance policies, the law provides that on application by a person in military service the Administrator of Veterans' Affairs may guarantee payment of premiums in order to prevent lapsing or forfeiting of policies. Such persons may, within one year after leaving military service, pay up premiums unpaid by them and resume payments of regular premiums. If they fail to do so, the policy lapses and the cash surrender value accrues to the government to the extent neces-

sary to meet the cost of premiums which it has guaranteed. The Veterans' Administration is required to issue through suitable military and naval channels a notice for distribution to persons in military service explaining the benefits provided by the law in connection with life insurance policies and to furnish forms to be distributed to those desiring to apply for benefits.

The benefits are applicable to contracts of life insurance up to but not exceeding a total face value of $5,000, irrespective of the number of policies held by the person, when the contracts were made and the premium was paid thereon before the approval date of the law or not less than thirty days before entering service. The benefits do not apply to any policy on which premiums are due and unpaid for a period of more than one year at the time when application for benefits is made, to any policy on which there is outstanding a policy loan or other indebtedness equal to or greater than 50 per cent of the cash surrender value of the policy, to any policy which is void or which may at the option of the insured be voidable in case of military service, or to any policy which as a result of military service provides for the payment of any sum less than the face thereof or for the payment of an additional amount of premium.

TAXES ON PROPERTY AND INCOME

If a person in service, or any person in his behalf, files with the collector of taxes, or other officer whose duty it is to enforce the collection of taxes or assessments, an affidavit showing (1) that a tax or assessment has been assessed on property as described below, (2) that such tax or assessment is unpaid and (3) that by reason of service the ability of the person to pay the tax or assessment is materially affected, no sale of the property may be made to enforce the collection of the tax or assessment, or any proceeding or action for such purpose commenced, except on leave of court granted on application made by the collector or other officer. The court is authorized to stay such a proceeding or sale for a period extending not more than six months after the termination of the period of military service of such a person.

When by law, however, such property may be sold or forfeited to enforce the collection of the tax or assessment, the person in military service has the right to redeem the property at any time not later than six months after the termination of service, but in no case later than six months after the date when the Soldiers' and Sailors' Civil Relief Act ceases to be in force. If any tax or assessment shall not be paid when due, such tax or assessment due and unpaid will bear interest until paid at the rate of 6 per cent per annum.

The benefits here discussed apply when any taxes or assessments, whether general or special, falling due during the period of military service in respect of real property owned and occupied for dwelling, agricultural or business purposes by a person in military service or his dependents at the commencement of the period of military service and still so occupied by his dependents or employees are not paid. The Secretary of War and the Secretary of the Navy are required to make provision, in such manner as each may deem appropriate for his respective department, to insure notice to persons in military service of the benefits accorded with respect to taxes and the action made necessary to claim these benefits in each case.

With respect to income taxes, the law provides that the collection from any person in military service of any tax on his income, whether falling due prior to or during his period of service, shall be deferred for a period extending not more than six months after the termination of his period of service, if the person's ability to pay the tax is materially impaired by reason of service. No interest on any amount of tax, collection of which is deferred, and no penalty for nonpayment of such amount during such period, will accrue for the period of deferment by reason of such nonpayment.

PUBLIC LANDS

The law provides, in general, that no right to any lands owned or controlled by the United States initiated or acquired under the laws of the United States, including the mining and mineral leasing laws, by any person prior to entering military service shall during the period of service be forfeited or prejudiced by reason of his absence from the land or his failure to perform any work or make any improvements thereon or his failure to do any other act required by or under such laws. Special provisions relate to homesteads, desert land entries, mining claims, mineral leases and irrigation rights. The Secretary of the Interior is required to issue through appropriate military and naval channels a notice for distribution to persons in service explanatory of the benefits of the law in connection with public lands and to furnish forms for use by persons desiring to apply for the benefits.

ADMINISTRATIVE REMEDIES

If in any proceeding to enforce a civil right in any court it is made to appear that any interest, property or contract has since the approval date of the law been transferred or acquired with intent to delay just enforcement by taking advantage of the benefits of the law, the court will enter such judgment or order as might lawfully be entered, the provisions of the Soldiers' and Sailors' Civil Relief Act to the contrary notwithstanding.

In any proceeding under the law a certificate signed (1) by the Adjutant General of the Army as to persons in the Army or in any branch of the United States service while serving pursuant to law with the Army, (2) by the Chief of the Bureau of Navigation of the Navy Department as to persons in the Navy or in any other branch of the service while serving pursuant to law with the Navy, (3) by the Major General Commandant, United States Marine Corps, as to persons in that corps or in any other branch of service while serving pursuant to law with the Marine Corps, or signed by any officer designated by any of them respectively, shall when produced be prima facie evidence as to any of the following facts stated in such certificates:

> That the person named has not been, or is, or has been in military service; the time when and the place where such person entered military service, his residence at that time, and the rank, branch and unit of such service that he entered, the dates within which he was in military service, the monthly pay received at the date of issuing the certificate, the time when and the place where such person died in or was discharged from such service.

This law will remain in force until May 15, 1945. If at that time the United States is engaged in war, the law will remain in force until such war is terminated by treaty of peace proclaimed by the President and for six months thereafter.

MEDICAL TRAINING CENTERS

A U. S. Army Medical Department Replacement Training Center became effective at Camp Joseph T. Robinson, Ark., January 15, bringing to 22,000 the number of medical trainees that can be trained in one training cycle. The Camp Robinson Center will have a capacity of 7,000, the same as the training center at Camp Grant, Ill., while the training center at Camp Lee, Va., has a capacity of 8,000 and the training center at Camp Barkeley, Texas, 4,000. Of this total of 26,000, about 4,000 constitutes overhead personnel, while the remaining 22,000 represent actual trainees for each training cycle. Plans are being made to increase the capacity of the training center at Camp Barkeley and perhaps that at Camp Robinson. At the Army Medical Field Service School, Carlisle Barracks, Pa., a class of 347 medical officers and a class of 231 enlisted men began a course of instruction in field duties. The enlisted men on graduation will receive commissions as second lieutenants in the Medical Administrative Corps.

DR. FRED RANKIN ORDERED TO ACTIVE DUTY

Dr. Fred Rankin, Lexington, Ky., President-Elect of the American Medical Association, has been called to active duty in the Office of the Surgeon General of the United States Army with the rank of Colonel. He will serve as consulting surgeon. He assumes active duty on March 1.

ORGANIZATION SECTION

OFFICIAL NOTES

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Program of Meetings to be Held in Chicago February 16 and 17

The thirty-eighth annual congress of the Council on Medical Education and Hospitals of the American Medical Association will be held at the Palmer House, Chicago, February 16 and 17. The Federation of State Medical Boards of the United States will participate in the congress. The program follows:

MONDAY, FEBRUARY 16, 10 A. M.

RAY LYMAN WILBUR, M.D., PRESIDING

Medical Care of Civilian Population During War.
RAY LYMAN WILBUR, M.D., Stanford University, Calif.
Chairman, Council on Medical Education and Hospitals.

The Relation of the Chemist to Medicine.
VINCENT DU VIGNEAUD, PH.D., New York.
Professor of Biochemistry, Cornell University Medical College.

(Topic to be Supplied.)
RUFUS C. HARRIS, LL.D., New Orleans.
President, Tulane University of Louisiana.

The Relation of Pharmacology to Therapy.
SOMA WEISS, M.D., Boston.
Hersey Professor of the Theory and Practice of Physic, Harvard University.

The War, the Colleges and Federal Aid.
WILLIAM B. MUNRO, PH.D., LL.D., Pasadena.
Professor of History and Government, California Institute of Technology.

The Effect of the War on Medical Education in Canada.
J. C. MEAKINS, M.D., Montreal, Quebec.
Dean, McGill University Faculty of Medicine.

RED LACQUER ROOM

MONDAY, FEBRUARY 16, 2:15 P. M.

RAY LYMAN WILBUR, M.D., PRESIDING

Current Medical Personnel Problems of the Army.
Col. GEORGE F. LULL, M.D., Washington, D. C.
Chief, Personnel Division, United States Army Medical Corps. (Representing the Surgeon General of the United States Army.)

Medical Education from the Standpoint of the Navy Medical Corps.
REAR ADMIRAL ROSS T. MCINTIRE, M.D., Washington, D. C.
Surgeon General, United States Navy.

Needs of the Public Health Service for Medical Personnel in National Defense Activities.
THOMAS PARRAN, M.D., Washington, D. C.
Surgeon General, United States Public Health Service.

Selective Service and Medical Students.
BRIG. GEN. LEWIS B. HERSHEY, Washington, D. C.
Director, Selective Service System.

The Committee on Medical Preparedness of the American Medical Association.
IRVIN ABELL, M.D., Louisville, Ky.
Chairman, Committee on Medical Preparedness of the American Medical Association, and Chairman, Health and Medical Committee of the Federal Security Agency.

The Role of Medical Schools in the War.
HAROLD S. DIEHL, M.D., Minneapolis.
Dean, University of Minnesota Medical School, and Member, Procurement and Assignment Service for Physicians, Dentists and Veterinarians of the Office of Defense, Health and Welfare Services.

RED LACQUER ROOM

TUESDAY, FEBRUARY 17, 9:30 A. M.

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS

RAY LYMAN WILBUR, M.D. AND J. EARL McINTYRE, M.D., PRESIDING

Citizenship as Related to Licensure.
WALTER E. VEST, M.D., Huntington, W. Va.
President, Public Health Council, West Virginia Department of Health.

Access to Hospital Records. Some Legal Aspects.
T. V. MCDAVITT, Chicago.
Bureau of Legal Medicine and Legislation, American Medical Association.

The Function of the State Hospital as an Educational and Social Agency.
WINFRED OVERHOLSER, M.D., Washington, D. C.
Superintendent, St. Elizabeths Hospital.

Accelerating Medical Training in Canada.
E. STANLEY RYERSON, M.D., Toronto, Ontario.
Assistant Dean, University of Toronto Faculty of Medicine.

Summary of the Work of the Council on Industrial Health of the American Medical Association
S. J. SEEGER, M.D., Texarkana, Texas.
Chairman, Council on Industrial Health.

Teaching of Professional Ethics in Medical Schools.
ARTHUR T. MCCORMACK, M.D., Louisville, Ky.
State Health Commissioner.

The Integrated Course in Anatomy.
B. I. BURNS, M.D., New Orleans.
Dean, Louisiana State University School of Medicine.

RED LACQUER ROOM

THE FEDERATION OF STATE MEDICAL BOARDS

MONDAY, FEBRUARY 16

FEDERATION DINNER

6:30 P. M.

American Medicine and the National Emergency.
MORRIS FISHBEIN, M.D., Chicago.
Editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Presidential Address.
J. EARL MCINTYRE, M.D., Lansing, Mich.
President, Federation of State Medical Boards of the United States.

Round Table Discussion. *ROOM SEVENTEEN*

TUESDAY, FEBRUARY 17

FEDERATION LUNCHEON

12:30 P. M.

ROOM NINE

TUESDAY, FEBRUARY 17, 2:15 P. M.

J. EARL McINTYRE, M.D., PRESIDING

Industrial Health as Related to Licensure.
C. O. SAPPINGTON, M.D., Dr.P.H., Chicago.
Consultant.

Licensure Problems in the District of Columbia.
GEORGE C. RUHLAND, M.D., Washington, D. C.
Secretary-Treasurer, Commission on Licensure.

Have Basic Science Laws Advanced the Practice of Medicine?
THOMAS J. CROWE, M.D., Dallas.
Secretary, Texas Board of Medical Examiners.

Revision of the Constitution and By-Laws of the Federation of State Medical Boards.
T. V. MCDAVITT, Chicago.
Bureau of Legal Medicine and Legislation, American Medical Association.

Business Session. *RED LACQUER ROOM*

CENTRAL COUNCIL FOR NURSING EDUCATION

MONDAY, FEBRUARY 16, 12:15 P. M.

Luncheon for Lay Boards of Hospitals and Public Health Nursing Organizations.

Address.
FRANKLYN BLISS SNYDER, PH.D., LL.D., Evanston, Ill.
President, Northwestern University. *GRAND BALL ROOM*

MEDICAL LEGISLATION

STATE MEDICAL LEGISLATION

Maine

Bills Introduced.—S. 609X proposes, among other things, to amend the premarital examination law so as to provide that the required physical examination of each party to a proposed marriage may be made also by a physician duly licensed to practice outside Maine who is a graduate of a class A medical school. H. 1953X proposes so to amend the premarital examination law as to permit any justice of the superior court or any judge of probate in his discretion on the joint application of both parties to a proposed marriage (1) to dispense with the requirements that both parties shall be examined by a licensed physician and shall undergo stated laboratory tests to ascertain the presence of a stated venereal disease or (2) to extend the period following the examination of the physician and the required laboratory test within which the marriage must be solemnized to not later than ninety days after the examination and test.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 327.

CALIFORNIA

Housman Imprisoned.—Dr. Nathan S. Housman, San Francisco, entered San Quentin Penitentiary on November 4 to start serving a one to fourteen year term for perjury which grew out of narcotic violations, newspapers reported on November 5. In his first trial Dr. Housman is alleged to have given perjured testimony on misdemeanor charges of failing to keep proper records of narcotic prescriptions (THE JOURNAL, Dec. 13, 1941, p. 2085).

Ear, Nose and Throat Meeting.—The Western section of the American Laryngological, Rhinological and Otological Society will meet at the Ambassador Hotel, Los Angeles, February 1. The speakers will be:

Dr. Clarence J. Berne, Los Angeles, Minerals and Water Balance in Surgery.
Dr. Burrell O. Raulston, Los Angeles, Discussion of Newer Sulfonamides.
Dr. Howard F. West, Los Angeles, Diabetics Today.
Dr. Rupert B. Raney, Los Angeles, Late Treatment of Tic Douloureux.
Dr. Arthur C. Jones, Boise, Idaho, Use of the Diathermy Knife in Submucous Work.
Dr. Jesse B. Naftzger, Los Angeles, Fractures of Facial Bones Involving Accessory Sinuses.
Dr. Pierre P. Viole, Los Angeles, Intratemporal Repair of the Facial Nerve.
Dr. Harrington B. Graham, San Francisco, A Case of Carcinoma of the Epiglottis Treated by the Cyclotron.

COLORADO

Personal.—Thomas D. Kroner, Ph.D., assistant professor of bacteriology, Colorado State College, Fort Collins, has been appointed to a similar position at the Louisiana State University, Baton Rouge, succeeding Charles S. McCleskey, Ph.D., who has been called to active service in the army.

Refresher Courses.—The Colorado State Medical Society will offer a series of refresher courses in Denver, February 16-17. One course will be given at the Denver General Hospital on "Treatment of Fractures and Allied Traumatic Conditions"; one at the Colorado General Hospital, "Acute and Chronic Pulmonary Conditions," and one at the Colorado Psychopathic Hospital, "Psychiatry for the General Practitioner." The series precedes the tenth Annual Midwinter Postgraduate Clinics to be held in Denver, February 19-21.

CONNECTICUT

Personal.—Governor Hurley recently appointed Dr. Charles John Satti Jr., New London, to be commissioner for the second district, under the workmen's compensation laws of the state requiring that one of the five commissioners be a physician. He succeeds Dr. James J. Donohue, Norwich. Dr. Satti graduated at Yale University School of Medicine, New Haven, in 1923. He was secretary of state during the administration of Governor Wilbur Cross.

Lectures on Hearing.—Dr. Norton Canfield, associate professor of otolaryngology, Yale University School of Medicine, New Haven, opened a series of lectures on hearing at the New Haven Hospital, New Haven, January 20, with a talk entitled "Physiology of Hearing Including the Fundamentals of Sound and the Anatomy of the Cochlear Mechanism." On January 22 he discussed "Audiometry"; January 27 he will speak on "Etiology of Deafness," and January 29, "Treatment of Deafness."

Health Service for Industrial Plants.—After a year's study, a program has been approved by the department of preventive medicine of Yale University School of Medicine and the New Haven Medical Association for servicing small industrial plants which have no medical service, except one of emergency. Wherever possible, the plan provides for participation by the family physician, especially in preemployment and periodic examinations. The consultative service is to complement rather than supplement the service available to industry by the bureau of industrial hygiene of the state department of health, and facilities are to be used for clinical teaching by the department of preventive medicine of the university. All research data accumulated during the service will be used in an effort to decrease the incidence of disease. The project will be reviewed after a trial period of two years to consider its continuance.

DISTRICT OF COLUMBIA

Interprofessional Conference Formed.—Under the auspices of the Medical Society of the District of Columbia an Interprofessional Conference has been organized to bring together representatives of related professional groups for consideration of mutual problems concerning preservation of civilian health in Washington during the war emergency, the Washington *Star* reported, January 9. In the new setup are the District dental society, the District pharmaceutic association, Graduate Nurses' Association, Health Security Administration and hospital executives. The officers are Dr. Robert Lomax Wells, chairman; Dr. Valentine M. Hess, vice chairman, and Mr. Theodore Wiprud, secretary of the District medical society, secretary. The group plans to hold meetings as often as deemed advisable to keep the cooperating agencies informed on developments bearing on their responsibilities for maintenance of civilian health.

FLORIDA

Public Health Officers.—Dr. William H. Pickett, Jacksonville, state health officer, was elected president of the Florida Public Health Association at its annual meeting in Orlando, succeeding Dr. Leander J. Graves, Tallahasse, director of the Leon County health unit. Other officers are Dr. Leland H. Dame, Sebring, Katherine L. Corbin, Jacksonville, vice presidents; Lord N. Harlow, D.D.S., Jacksonville, president-elect of the Florida Dental Society, secretary-treasurer, succeeding Dr. Edward M. L'Engle, Jacksonville. The 1942 session will be in Miami.

Society News.—The Dade County Medical Society was addressed, November 5, in Miami by Drs. James M. McClamroch and Richard M. Fleming, Miami, on "Gunshot Wounds of the Abdomen."——Dr. Gerry R. Holden, Jacksonville, among others, discussed "Treatment of Menopausal Symptoms in Women with Especial Reference to the Use of Diethylstilbestrol" before the Duval County Medical Society in Jacksonville, November 4.——At a meeting of the Pinellas County Medical Society in St. Petersburg, November 6, Drs. William M. Davis, St. Petersburg, spoke on "Meralgia Paresthetica" and Arthur J. Bieker, St. Petersburg, "New Conceptions in Endocrinology."

Welfare Employees Must Refrain from Politics.—At a meeting of the county welfare board on November 26 new by-laws were adopted providing that "it shall be the policy of the board to require every employee to refrain from political activity," such activity to be cause for dismissal. At the same time it was decided to make a study of ways and means of tightening its free medical services. This action was based on past charges that politics has influenced the admission and treatment of some patients in the county home and hospital, the administration of which was transferred about a month prior to the meeting from the county commission to the newly appointed welfare board.

ILLINOIS

Dr. Kinnaman Goes to New Rochelle.—Dr. Joseph H. Kinnaman, deputy health commissioner and director of maternal and child health, Peoria City Department of Health, has resigned to become health officer of New Rochelle, N. Y. He will be succeeded by Dr. John A. Carswell, Milwaukee, associate executive secretary of the Wisconsin Anti-Tuberculosis Association, effective February 1. Dr. Kinnaman formerly was health commissioner of Topeka, Kan., assistant health commissioner of Cincinnati, instructor at the State University of Iowa College of Medicine, Iowa City, and deputy commissioner to the Iowa State Department of Health in charge of health and health education activities. Dr. Carswell graduated at the University of Toronto Faculty of Medicine in 1928.

Chicago

Meeting on Medical History.—The Society of Medical History of Chicago will be addressed in the Assembly Room at the Institute of Medicine of Chicago, Crerar Library, on January 27 by Drs. Stewart C. Thomson and Leo M. Zimmerman. Their subjects will be, respectively, "The Surgeon-Anatomists of Great Windmill Street" and "The Evolution of Blood Transfusion."

Society News.—Dr. Rettig Arnold Griswold, Louisville, Ky., among others, spoke before the Chicago Surgical Society, December 12, on "Treatment of the Wound in Compound Fractures"; Dr. Hiram Winnett Orr, Lincoln, Neb., discussed the talk.——The Chicago Medical Society was addressed, January

14, by John Howard Mueller, Ph.D., Boston, and Howard J. Shaughnessy, Ph.D., on "Virus and Rickettsial Diseases."—— Dr. Delbert K. Judd, among others, addressed the Chicago Laryngological and Otological Society, January 5, on "Pressure Changes in the Nose and Maxillary Sinus Under Normal Conditions and in Disease." —— The Chicago Tuberculosis Society was addressed, January 22, by Drs. Andrew C. Ivy on "Physiology of Respiration in Pulmonary Tuberculosis" and Thomas F. Thornton Jr. and William E. Adams, "Resection of Lung Tissue in the Treatment of Pulmonary Tuberculosis."

Personal.—Five staff physicians of the Hospital of St. Anthony de Padua were recently guests of honor at a banquet at the Edgewater Beach Hotel in view of their long service to the hospital; they are Drs. John J. Sprafka, Frank J. Jirka, Chicago, Fred B. Olentine, Oak Park, Ill., Frank J. Pokorney, Cicero, Ill., and Joseph Zabokrtsky, each of whom was given a jeweled key.——Dr. Walter Schiller, chief of the pathology department at the Cook County Hospital, was named an honorary member of Phi Lambda Kappa at the fraternity's annual dinner, December 30. He will fill the honorary membership held by the late Dr. Jay F. Schamberg, professor of dermatology and syphilology at the University of Pennsylvania Graduate School of Medicine, Philadelphia. There are said to be only four honorary members in the fraternity.——Dr. Joseph B. De Lee was recently honored on his seventy-second birthday at the opening meeting of the Mothers' Aid of the Chicago Lying-In Hospital and Dispensary; Dr. De Lee founded the hospital.

KANSAS

Personal.—Dr. Ransley J. Miller, Topeka, has been appointed acting secretary of the Topeka Board of Health to succeed Dr. Charles B. Stephens, Topeka, who resigned.

Society News.—Dr. Willard M. Allen, St. Louis, addressed the Sedgwick County Medical Society in Wichita, January 6, on "Significance of Abdominal Vaginal Bleeding" and "Clinical Use of the Sex Hormones." The program was sponsored by the Kansas Obstetrical and Gynecological Society. —— The Marion County Medical Society was addressed recently by Drs. Charles F. Taylor, Norton, on "Diseases of the Chest Simulating Tuberculosis" and William F. Stone Jr., Norton, "Contact Cases of Tuberculosis." —— Dr. Peter T. Bohan, Kansas City, Mo., discussed "Causal Factors in Angina Pectoris and Coronary Infection" before the Pratt County Medical Society in Pratt recently.

LOUISIANA

Public Health Meeting.—Dr. Ford J. A. MacPherson, Baton Rouge, was chosen president of the Louisiana Public Health Association at its annual meeting in New Orleans on December 9. Dr. Reuben A. Brown, New Orleans, was chosen secretary-treasurer. The speakers at the meeting included Dr. John R. Heller Jr., U. S. P. H. S., Washington, D. C.; Ernest C. Faust, Ph.D, acting head of the department of tropical medicine of Tulane University of Louisiana School of Medicine, New Orleans; Dr. John A. Ferrell, New York, of the International Health Division of the Rockefeller Foundation, and Dr. Felix J. Underwood, Jackson, director of the Mississippi State Board of Health. A resolution was adopted at the meeting urging that the state health department provide accident, sickness and hospitalization insurance for its employees.

MAINE

Ear, Nose and Throat Meeting.—The Eastern section of the American Laryngological, Rhinological and Otological Society met at the Eastland Hotel, Portland, January 15, for the following program:

Dr. Gabriel Tucker, Philadelphia, Observation on Tumors of the Larynx, Benign and Malignant.
Dr. Henry B. Orton, Newark, N. J., Significance of Hoarseness.
Dr. Frederick T. Hill, Waterville, Nasopharyngeal Fibroma.
Dr. Alexander S. MacMillan, Boston, X-Ray of Mastoids.
Dr. Harold G. Tobey, Boston, Acute Otitis Media and Mastoiditis.
Dr. Robert L. Moorhead, Brooklyn, Chronic Otitis Media.
Dr. James G. Dwyer, New York, Otitic Meningitis.
Dr. Champ Lyons, Boston, Chemotherapy in Otolaryngology.

NEBRASKA

Personal.—Dr. Benjamin F. Lorance, Auburn, the oldest physician in Nemaha County, was given a surprise dinner by members of the county medical society to observe his eighty-third birthday, December 6. In addition to carrying on his private practice he is serving as county physician.

New Negro Health Society.—The state medical journal announces that the Nebraska Negro Medical Society filed articles of incorporation with the secretary of state, Frank Marsh, November 20. The object of the new group is to promote health movements among Negroes in Douglas County, it was stated.

Society News.—Dr. George W. Covey, Lincoln, discussed "Vitamin Deficiencies and Anemias" before the Adams County Medical Society, Hastings, recently.——A recent meeting of the Madison Six County Medical Society was addressed in Norfolk by Drs. Edward J. Delehanty, Norfolk, on "Melancholia"; Abram E. Bennett, Omaha, "Electroencephalography as a Diagnostic and Prognostic Aid in Neurology," and Willard C. Brinegar, Norfolk, "The Parkinsonian Syndrome of the Acute Encephalitis."——The Tri-County Medical Society was addressed in Stratton, November 25, by Dr. Frank Lowell Dunn, Omaha, on "A New Approach to Physical Diagnosis of Chest Sounds"; Mr. M. C. Smith, Lincoln, executive secretary of the state medical association, discussed medical problems.

NEW YORK

Society News.—Dr. Henry P. Wagener, Rochester, Minn., discussed "Ocular Evidence of Systemic Disease" before the Buffalo Academy of Medicine in Buffalo, November 12.—— Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, among others, addressed the one hundred and twenty-first annual meeting of the Medical Society of the County of Monroe in Rochester, December 16, on "American Medicine Prepares."

Graduate Course.—The Medical Society of the State of New York is sponsoring a course to be given before the Fulton County Medical Society alternately at Johnstown and at Gloversville. "The Treatment of Common Diseases" is the theme of the course which has been arranged by Dr. Clayton W. Greene. The program will be presented by the following speakers, all of Buffalo:

Dr. Francis D. Leopold, Results of Modern Methods in the Treatment of Anemia, February 6.
Dr. Louis Maxwell Lockie, Management of Arthritis, Acute and Chronic, February 13.
Dr. Ivan Hekiman, Practical Application of Hormonal Therapy, February 20.
Dr. Earl D. Osborne, Treatment of Common Skin Lesions, February 27.
Dr. Greene, Use of Sulfanilamide and Drugs of That Group, March 6.
Dr. David K. Miller, What Do We Know About Vitamins, March 13.

New York City

Dr. Ladd on Leave of Absence as Dean.—Dr. William S. Ladd has been granted a year's leave of absence as dean of Cornell University Medical College, because of illness. The late Dr. Walter L. Niles who had been appointed acting dean died while in office. Up to January 5 the trustees of the university had not yet appointed another acting dean.

Dr. Pappenheimer Receives Lilly Award.—Dr. Alwin M. Pappenheimer, professor of pathology, Columbia University College of Physicians and Surgeons, was the recipient of a prize of $1,000 and a bronze medal from the Eli Lilly company for his work in developing a new science combining bacteriology, chemistry, physics and nutrition in the treatment of disease. The presentation took place during the annual banquet of the Society of American Bacteriologists, the American Association of Immunologists and the American Society for Experimental Pathology in Baltimore, December 30. Dr. Pappenheimer received his M.D. degree at Columbia in 1902. He has been associated with the teaching faculty since 1909, becoming professor in 1923. He has done extensive research in infectious and other diseases.

Healthmobile Dedicated.—The Healthmobile of the Brooklyn Tuberculosis and Health Association was dedicated on December 18. The speakers included Borough President John Cashmore of Brooklyn; Drs. Maurice J. Dattelbaum, Brooklyn, president of the Medical Society of the County of Kings; Kendall Emerson, managing director of the National Tuberculosis Association, and Dr. John L. Rice, city health commissioner. The Healthmobile will be used in the health education of children and adults, especially in areas where large groups of defense industry workers are employed. It was planned in cooperation with the board of education and the department of health and produced by the Brooklyn Tuberculosis and Health Association.

Sixty Years a Member of Infirmary Staff.—Dr. Annie S. Daniel, for sixty years a member of the staff of the New York Infirmary for Women and Children, was guest of honor at a dinner given by one hundred graduates of the infirmary. Dr. Daniel, who is in charge of the infirmary's outpatient service, graduated at Woman's Medical College of the New York Infirmary for Women and Children, New York, in 1879. The speakers at the dinner included Drs. Emily Lewi, Emily Dunning Barringer, president of the American Medical Women's Association; Sara Josephine Baker, Bellemead, N. J., consultant for the U. S. Public Health Service; Mary E. Childs MacGregor, Chatham, N. J., and Mary Lee Edward.

NORTH CAROLINA

Department of Neurosurgery Created.—The establishment of a department of neurosurgery at Bowman Gray School of Medicine, Winston-Salem, was announced at an alumni banquet in Charlotte in December. Dr. Henry G. Schwartz, instructor in clinical neurologic surgery and instructor in neuroanatomy, Washington University School of Medicine, St. Louis, has been appointed to head the new department, effective in July. Dr. Schwartz graduated at Johns Hopkins University School of Medicine, Baltimore, in 1932.

Obstetric Meeting.—The North Carolina Obstetrical and Gynecological Society was addressed at its annual winter meeting in Charlotte, December 5, by the following Charlotte physicians:

Dr. Otis Hunter Jones, X-Ray Studies of Pelvis and Fetal Pelvic Relationship.
Drs. Williamson Z. Bradford and Wallace B. Bradford, X-Ray Visualization of the Fallopian Tubes.
Dr. Ernest W. Franklin Jr., Analysis of Cesarean Section in Charlotte.
Dr. Oren Moore, Use of X-Ray in Obstetrics.

PENNSYLVANIA

Society News.—The Fayette County Medical Society was addressed in Uniontown, January 8, by Drs. Samuel A. Baltz, Uniontown, and Fred H. Harrison, Connellsville, on "Place of the Physician in Civilian Defense" and "Protection Against War Gases" respectively.——Dr. Adam C. Williamson, Pittsburgh, discussed "Care and Treatment of Prenatal Emergencies" before the Westmoreland County Medical Society in Latrobe, January 6.

Philadelphia

Course in Pathology.—The Woman's Medical College announced a course in pathology for physicians preparing for the specialty board examinations in obstetrics and gynecology, January 27 through May 12. Applications to take the course should be addressed to the Dean's Office, Woman's Medical College of Pennsylvania.

Society News.—The Northeast Branch of the Philadelphia County Medical Society devoted its meeting, January 2, to a panel discussion on "Chemotherapy Brought Up to Date"; the speakers were Drs. Jonathan E. Rhoads on surgery; Frank W. Konzelmann, laboratory; Pascal F. Lucchesi, communicable diseases, and Harrison F. Flippin, general medicine.——The Philadelphia Rheumatism Society held an open meeting, January 8, on "The Use of Chrysotherapy in the Treatment of Arthritis."

TEXAS

Neuropsychiatric Meeting.—The Texas Neuropsychiatric Association recently held its semiannual meeting at Houston, with the Galveston-Houston Psychiatric Society acting as host. Among the speakers were:

Drs. Ray K. Daily and James Greenwood Jr., Houston, Optochiasmatic Arachnoiditis, Preliminary Report.
Dr. Stephen Weisz, Galveston, Anxiety as a Symptom.
Dr. Jack A. Ewalt, Galveston, The Rorschach Test in Diagnosis of Psychiatric Disorders.
Dr. Robert C. L. Robertson, Houston, Water Balance as a Problem in Neurosurgery.

At the banquet in the evening Robert L. Sutherland, Ph.D., director of the Hogg Foundation of the University of Texas, among others, discussed the work of the foundation, which is designed for "the common good of all or any part of Texas."

WISCONSIN

Charles Crownhart Named Executive Secretary of State Society.—Charles H. Crownhart Jr., Madison, for years legislative counsel for the Wisconsin State Medical Society, has been appointed executive secretary to succeed his brother, the late J. George Crownhart. Mr. G. B. Larson, who has been acting secretary, will continue as assistant secretary.

Society News.—Dr. William A. Hilger, Milwaukee, discussed jaundice before the Milwaukee Academy of Medicine, November 18.——Dr. Creighton Barker, New Haven, Conn., executive secretary of the Connecticut State Medical Society, addressed the annual dinner meeting of the Medical Society of Milwaukee County, December 11, on "The Doctor in Wonderland."——Dr. Edward A. Schumann, Philadelphia, presented "Evaluation of Various Types of Cesarean Section" before the Milwaukee Society of Clinical Surgery recently.

MIDWAY ISLANDS

Society News.—The Midway Medical-Dental Society was addressed at its regular monthly meeting, November 10, by Dr. Khatchig H. Terts, on "Advances in Industrial Medicine" and Dr. Thomas A. Collins, "The Diagnosis and Treatment of Low Back Pain." The society was also addressed recently by Dr. Herbert G. Shepler on "Recent Advances in Chemotherapy." Dr. Charles R. Forrester is secretary of the society.

GENERAL

National Negro Health Week.—The twenty-eighth anniversary of National Negro Health Week will be held April 5-12. The theme "Opportunities in the National Defense Program for Improvement of Community Health" has been designated the special objective for 1942. Roscoe C. Brown, D.D.S., U. S. Public Health Service, Washington, D. C., is chairman of the National Negro Health Week Committee.

National Malaria Society.—At the twenty-fourth annual meeting of the National Malaria Committee in St. Louis, Nov. 11-13, 1941, the committee changed its name to the National Malaria Society. Officers are Leland O. Howard, Sc.D., Washington, D. C., honorary president; Mr. John H. O'Neill, New Orleans, president; Col. James S. Simmons, Washington, president-elect; Dr. Harold W. Brown, Chapel Hill, N. C., vice president, and Dr. Mark F. Boyd, P. O. Box 997, Tallahassee, Fla., secretary-treasurer. The society plans to publish an annual periodical to be known as the *Journal of the National Malaria Society*. Publication will be in charge of an editorial board appointed for three year terms. The initial board includes Col. Charles F. Craig, M. C., U. S. Army, retired, San Antonio, Texas; Justin Andrews, Sc.D., Baltimore, and Mr. Nelson H. Rector, assistant state director, malaria control, Mississippi State Board of Health, Jackson, Miss.

Meeting of Southern Surgeons.—Dr. Barney Brooks, Nashville, Tenn., was elected president of the Southern Surgical Association at its annual session in Pinehurst, N. C., Dec. 9-11, 1941, to succeed Dr. Harry H. Kerr, Washington, D. C. Other officers include Drs. Frank S. Johns, Richmond, Va., and Foy Roberson, Durham, vice presidents; Edward William Alton Ochsner, New Orleans, secretary, and Charles A. Vance, Lexington, Ky., treasurer. The 1942 session will be in Savannah, Ga. Among the speakers at the recent meeting were:

Dr. James C. Owings, Baltimore, Successful Experimental Ligation and Division of the Thoracic Aorta.
Dr. George C. Finney, Baltimore, Surgical Aspect of Congenital Absence of the Gallbladder with Report of Two Cases.
Dr. Vernon C. David, Chicago, Extension of the Indications for Radical Operation in Cancer of the Rectum.
Dr. Warfield M. Firor, Baltimore, Succinyl Sulfathiazole: A New Intestinal Antiseptic.
Dr. Harry J. Warthen Jr., Richmond, Va., Gas Gangrene: An Analysis of Seventy-One Cases Treated in Civil Practice.
Dr. Daniel L. Borden, Washington, D. C., Personal Observations During the A. M. A. Trial.
Dr. Amos R. Koontz, Baltimore, Are Selective Service Rejections an Index of the State of Our National Health?

Society of University Surgeons.—The fourth annual meeting of the Society of University Surgeons will be held at the Cincinnati General Hospital and Children's Hospital, Cincinnati, February 12-14, with headquarters at the Hotel Alms. The speakers will include:

Drs. Samuel J. Stabins and Andrew H. Dowdy, Rochester, N. Y., Carcinoma of the Breast.
Drs. Horace McCorkle and Edward E. Fong, San Francisco, Clinical Significance of Gas in the Gallbladder.
Dr. Ralph F. Bowers, New York, Treatment of Carcinoma of the Stomach in the Aged Individual.
Drs. Edward S. Stafford and John Staige Davis, Baltimore, Successful Construction of a Complete Extrathoracic Esophagus.
Dr. Forrest O. J. Young, Rochester, N. Y., Function of the Lower Jaw Following Partial Resection.
Dr. Alexander Brunschwig, Chicago, Operative Treatment of Cystadenomas of the Pancreas.
Dr. John D. Stewart, Buffalo, Vitamin A Metabolism in Obstructive Jaundice.

On Thursday afternoon February 12 there will be presented current problems in the program of clinical and experimental investigation by members and faculty of the Graduate School of Surgery of the University of Cincinnati.

Conference on Planned Parenthood.—The Birth Control Federation of America announces a three day conference on planned parenthood, to be at the Waldorf-Astoria, New York, January 28-30. Included among the speakers will be:

Pascal K. Whelpton, Scripps Foundation for Research in Population Problems, Oxford, Ohio.
Dr. S. Bernard Wortis, New York, Medical Aspects of Planned Parenthood in a Post-War World.
Mrs. Christopher Tremantle, former editor, London *Mercury*, Planned Parenthood: A Report from Great Britain.
Dr. Mark V. Ziegler, Washington, D. C., U. S. Public Health Service, A Review of Public Health Services in the United States.
Newton Edwards, Ph.D., professor of education, University of Chicago, Education for Planned Parenthood in a Democratic Society.
Dr. Dorothy Boulding-Ferebee, Washington, D. C., chairman, family planning committee, National Council of Negro Women, Planned Parenthood as a Public Health Measure for the Negro Race.
Dr. John R. Rodger, Bellaire, Mich., Maternal and Child Health Program in Rural Areas.
Hazel Corbin, executive director, Maternity Center Association, New York, Prepared Parents: The Core of Creative Family Living.

At a clinic session on Friday afternoon the speakers will be Dr. Alan F. Guttmacher, associate professor of obstetrics,

Johns Hopkins University School of Medicine, Baltimore, on "The Contraceptive Clinic and Preventive Medicine"; Mrs. Stuart Mudd, director, Marriage Counsel, Philadelphia, "Counseling in Relation to the Clinic Patient," and Mrs. William Talbot, R.N., superintendent, Babies' Hospital, Philadelphia, "Relation of Maternal Health to Other Community Health or Social Agencies." The theme of discussion at the annual dinner will be "Population Planning as a Factor in a Democratic World" with the following speakers: Julian Huxley, British scientist and author; D. Kenneth Rose, national director of the Birth Control Federation of America, Inc., and Mrs. Frank P. Shepard, co-chairman, Metropolitan New York Committee, National Committee for Planned Parenthood.

Priceless British Museum Wrecked — Expression of Gratitude for American Aid. — Admiral Gordon-Taylor of England in December made a tour of the United States and Canada to express the gratitude of the medical profession in Great Britain for the aid given the British people during the bombing of their cities by the Germans. The British War Relief Society, Inc., 730 Fifth Avenue, New York City, has forwarded the Admiral's remarks concerning the destruction of the famous and priceless museum of the Royal College of Surgeons. He said that the Hunterian Museum of the Royal College was utterly wrecked by bombs. Its collection of specimens dealing with anatomy, comparative anatomy and surgical pathology was "undoubtedly the finest museum of its kind in the world and was the Mecca for surgeons from every country and the meeting place of anatomists, comparative anatomists and anthropologists generally.

The museum contained specimens of antiquarian as well as anatomic interest—the only mummy in the world exhibiting gallstones; the skeleton of the Irish giant O'Beirne, for which John Hunter paid in the victim's lifetime what Hunter (a Scot) considered a preposterously large sum. The giant's skeleton escaped intact and its preservation "is due to the aid given us by America."

The museum also possessed the world's finest collection of ornithologic skeletons, but of this collection of three thousand only four remain, although by a curious caprice the specimens surviving were the most valuable of all. They are the skeletons of the moa, the great auk and two solitaires. Sir Frank Colyer's valuable collection of comparative odontology also escaped, but of a large collection of skulls many were damaged and those of greatest value were destroyed. The president and council of the Royal college intend to reconstruct the museum on the old Hunterian lines and they are looking forward to the cooperation of surgeons of the allied powers in this task. The American College of Surgeons, touched by the disaster which befell the museum of an institution which cradled the American college in its infancy, has already made the handsome gesture of sending £2,000 to the Royal college for purposes of immediate relief. This is indeed, the Admiral said, a most friendly and greatly appreciated act on the part of surgeons from this side of the Atlantic.

Before the bombing began there were no fewer than a quarter of a million specimens. After the disaster the immediate problem confronting college authorities was how to salvage and convoy to safety what remained of the collection; means of transport were extremely scarce. Appeal was made to the American Ambulance Service in Britain maintained by the British War Relief Society in New York. Mr. Glenn Osborne of that service immediately came to the rescue, providing a fleet of ambulances in which seventy-eight loads of specimens were removed to safe places. It is notable that out of twenty-four thousand fragile specimens so moved only six were at all damaged during transport. "That is a tribute not only to the sound construction of the vehicles but to the skill and care of the women volunteer drivers. We have every reason for being grateful to the service and to its volunteer personnel for aid not only to museum specimens but to the living. The organization first proved its worth during the evacuation of Dunquerque. Of its aid then I had personal experience. Sick and wounded soldiers were being landed, often from small boats, at all sorts of out of the way points on the southeastern coast. Many of these evacuees needed immediate medical attention, which was provided by such means as were locally available. But this emergency assistance had to be supervised and supplemented by more expert aid. In transporting professional surgeons to the more hard pressed areas and in moving the injured inland, the cars of the American Ambulance Service in Britain did valiant work as I well know. I have reason to be especially grateful for aid rendered to myself in moving about under stress in my consultative capacity.

"The British people will never forget the help so willingly extended by the American people at that time. It should tend to bind us forever with a tie of mutual respect and affection that no evil power now or in the future can break."

LATIN AMERICA

First Congress of Internal Medicine.—The first Mexican Congress of Internal Medicine will be held in Mexico City, May 3-10, under the auspices of the president of Mexico and the Departments of Education and Public Health and with the cooperation of the medical societies of Mexico and the National University. The congress will be made up into various sections covering a wide range of subjects in this specialty.

Time Changed for Pan American Congress on the Child.—The eighth Pan American Congress on the Child will be held in Washington, D. C., May 2-9, instead of March 28-April 4. The session will be divided into three sections: Prevention of Diseases of Children and Medical Care, Education and Recreation, and Social Aspects of Protection of Children and Economical Help Through the Family. Papers to be presented must be received by the secretary before February 28 at the following address: Secretaría de Comité Uruguayo, Instituto Internacional Americano de Protección a la Infancia, Avenida 18 de Julio, No. 1648 (3er. piso), Montevideo, Uruguay.

CORRECTION OF CORRECTION

The Addis Count. — Dr. Ernest B. Zeisler of Chicago writes that an error is present in the correction entitled "Calculation of the Addis Count," which appears on page 2265 of THE JOURNAL of Dec. 27, 1941. Dr. Zeisler says that in the twelfth line of this correction the "0.4 sq. mm." should be "0.4 cu. mm.," and that in the thirteenth line the words "per cubic centimeter" should be deleted.

Government Services

Examination for Student Dietitians

The examination for student dietitians, which was to be held December 31, has been delayed until January 31. The announcement states that the salary for the student will be $420 a year, less a deduction of $330 a year for subsistence and quarters during the training period. Persons successfully completing the training course at the Army Medical Center will be eligible for retention in the service in dietitian positions paying $1,800 a year. Communications should be addressed to the U. S. Civil Service Commission, Washington, D. C.

Dr. Thompson Named to Newly Created Health Service Position

Dr. Lewis R. Thompson, Washington, director of the National Institute of Health and assistant surgeon general in charge of scientific research, has been appointed chief inspecting officer of the U. S. Public Health Service, a new position established in the Office of the Surgeon General. As a result of the increased demands on the public health service because of the expansion of programs of civilian and military defense, the field activities of the district offices of the public health service and its liaison officers in the army corps areas have been consolidated under one head. Dr. Rolla E. Dyer has been named to succeed Dr. Thompson as assistant surgeon general in charge of the Division of Scientific Research and as director of the National Institute of Health, effective February 1. Dr. Thompson graduated at Louisville Medical College in 1905 and was commissioned in the public health service in 1910. In June 1917 Dr. Thompson was detailed as principal assistant of the director of health and chief quarantine officer of the Philippine Islands, succeeding to the position of chief quarantine officer two years later. In April 1921 he became the first chief of the newly established Office of Industrial Hygiene Investigations in the Division of Scientific Research, which is now an important division of the National Institute of Health and the coordinating agency for all industrial hygiene activities in the national defense program. He has been assistant surgeon general in charge of the Division of Scientific Research since August 1930. Dr. Dyer graduated at the University of Texas School of Medicine, Galveston, in 1915. On completion of his internship he was commissioned as assistant surgeon in the public health service, where he has advanced through the various grades. He has been assistant director of the National Institute of Health since 1922 and since 1937 also chief of the division of infectious diseases at the institute.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 6, 1941.

The Polish Faculty of Medicine at Edinburgh

A prominent example of German barbarity is the destruction of universities. From the Polish universities the professors, when not done away with quickly, were sent to notorious concentration camps. Libraries were closed and their books confiscated. For the large number of Polish physicians and medical students who found refuge in this country a Polish faculty of medicine has been established within the University of Edinburgh. At the Royal Society of Medicine the dean of the faculty, Prof. A. T. Jurasz, delivered an address on the subject. In July 1940 the remnant of the Polish army, which included many medical officers, was brought to Britain. In view of the large number of Poles in Scotland, Colonel Fortescue, deputy director of medical services, Scottish command, sought a means of occupying and refreshing the knowledge of the physicians among them. He consulted Professor Crew, who was in command of a military hospital. The latter arranged for batches of twenty Polish medical officers at a time to be attached to that hospital for periods of a fortnight. Further arrangements were made with the faculty of medicine of Edinburgh University and with the Royal Infirmary of Edinburgh whereby Polish medical officers might be spread among different departments and clinics, but linguistic difficulties impaired the success of the scheme. As many of the Polish medical officers had held academic positions in the Polish universities and there were among the troops many medical students whose studies had been interrupted by the war, Professor Crew suggested that these professors should be given facilities at Edinburgh to teach their countrymen in their own language and that the undergraduates should be allowed to complete their curriculum and graduate. The authorities of Edinburgh University readily granted the necessary hospitality, and the heads of departments of the faculty of medicine placed their resources at the disposal of their Polish colleagues. The board of the famous Royal Infirmary agreed to open their lecture rooms and wards to Polish professors, lecturers and students. More recently these have been given accommodation in the municipal hospitals. The secretary of Edinburgh University and the legal adviser to the Polish government worked out the constitution of the new school.

The teaching staff comprises six professors, seven lecturers and ten other specialists. Edinburgh professors have taken subjects for which Polish lecturers were not available. The curriculum and standards of teaching and examination are the same as those of the faculties of medicine of Polish universities. A Polish hospital named after Paderewski has been organized in the grounds of the Western General Hospital, Edinburgh. It has been equipped with American help and is intended for the treatment of Polish civil as well as military cases. It is staffed by members of the Polish faculty of medicine and contains eighty beds and an outpatient department. Surgical beds and the operating room and x-ray department of the Western General Hospital have been placed at the disposal of the Poles.

The school began with seventy-seven students, of whom forty-seven are serving in the Polish forces. Some thirty had finished their studies in Poland but had not passed their examinations, and refresher courses were arranged for them. Two Scottish professors—Sydney Smith and T. J. Mackie—examine in forensic medicine and bacteriology respectively. For the second academic year there are one hundred and twenty students of whom five are Czechs.

New Wartime Feeding Plans for Children and War Workers

In the House of Lords Lord Woolton, minister of food, stated that the government was anxious to extend the feeding of children in schools by local education authorities and would make grants for the purpose. War conditions had altered the nature of the problem. We were all now, as a result of the equalizing effect of the ration book, living on a diet mainly influenced by the extent of the domestic ration. This was based on the average need of the average family and was not designed to meet the needs of special classes, who might find the diet insufficient. This particularly held for children, who needed more than the average of body-building foods. At present there were five million children in the elementary and secondary schools, and only three hundred thousand of these receiving meals in school. We could now assure local education authorities that a sufficiency of food would be forthcoming, whatever the demand. Priority supplies had been arranged to enable schools to serve the balanced meals recommended by the medical and scientific advisers for maintaining the growth and health of school children. Extension of the milk in schools scheme would also come into operation at once. (It was stated next day in the House of Commons that every local authority in the country received instructions on the new drive for the feeding of school children. It is expected that one million school children will receive hot midday meals within the next twelve months.)

In wartime, said the minister, it was the duty of the government to see that there was supplied food adequate for maintaining the physical strength of the workers producing munitions for our allies and ourselves. This could be done thanks in large measure to the aid given by the United States on the one hand and by our farmers on the other. Food would be allocated to industrial canteens according to needs in three groups—for workers requiring meals of the most substantial kind, for those catering for other workers and for those who serve the rest of the population. Heavy workers required more meat, fish or cheese than office workers. In some forms of work more sugar was required than in others.

Lord Horder said that this was a red letter day in the annals of children's nutrition. He envied Lord Woolton because in years to come it would be to his credit that he had adopted the principle of preventing child nutrition being sacrificed during wartime by the bold move of increasing considerably the provision of standard meals at school. The organizing would not be easy; everybody must help.

Motor Cyclists Should Wear a Crash Helmet

In the *British Medical Journal* a surgeon, Mr. Hugh Cairns, has made a strong plea for the wearing by all motor cyclists of a crash helmet, such as is now worn by them when they race. During the first twenty-one months of the war 2,279 motor cyclists and pillion passengers were killed on the roads, 21 per cent more than during the corresponding months of peace. Head injury was present in over 90 per cent. The helmet recommended consists of an outer shell of some firm substance shaped like an inverted pudding bowl. It is lined with a series of web slings attached to the base and fitting snugly on the rider's head. The helmet is also retained in place by a chin strap. In 15 cases, seen by Mr. Cairns, of injury while wearing a crash helmet the effects were unusually mild except 1 in which a frontal fracture had been sustained. In all complete recovery took place. In most of them there was considerable damage to the helmet. It did not invariably prevent fracture of the skull, but it probably prevented the fracture from spreading as far as it otherwise would have done. In frontal injuries when there is no crash helmet the fracture

usually extends backward along the roof of the orbit and into the accessory nasal sinuses, whereas in the case mentioned the fracture was limited to the area of damage of the crash helmet. The brain damage in all cases was remarkably slight, as judged by absence of neurologic signs and by the promptness and completeness of the recovery of intellectual functions.

United States Ambulances for Wounded Airmen: Electrically Heated Blankets

The duke of Kent received in London from the American ambassador, Mr. J. G. Winant, two motor ambulances fitted with electrically heated blankets. These represent a much larger number of a new type, of which over thirty have been received and are in service oversea. Others are on their way. The duke of Kent said that road transport in winter tested the skill of nurses in keeping the patients comfortable, and it had appeared to the British-American Ambulance Corps that the only solution was electric heating, by which the blanket could be kept at an even temperature. Mr. Winant described the gift as evidence of the support of every section in the United States. Next to fighting for a great cause was the opportunity of helping those who risked their lives for it.

AUSTRALIA

(From Our Regular Correspondent)

Oct. 25, 1941.

The Medical Profession in New Zealand and Social Security Medical Services

Controversy regarding changes in the medical service in New Zealand has gone on for many years. In this small community of 1½ million people and about six hundred and fifty practicing physicians the standard of practice is high, and it is solely that this high standard might be maintained that the present deadlock between members of the profession and the government has developed. The New Zealand hospital system in the early days developed along the line that the provision of medical services for the sick poor was not a matter for private benevolence but a community responsibility. Such an attitute inevitably led to socialization of hospitals, and this process is now almost complete. The socialization of medical practice was first brought to light as a concrete proposal in 1927, when the New Zealand representative to the League of Nations signed a draft convention whereby the signatories undertook to introduce discussion of national health insurance into their legislatures. In 1934 the Hospital Boards Association issued tentative draft schemes for New Zealand, but none of these schemes allowed for the difference in character and distribution of population in New Zealand as distinct from that of Europe. In 1935 the Council of the British Medical Association set up the National Health Insurance Committee to investigate the position. This committee interviewed Dr. G. M. McLeary, Dr. Kaye Le Fleming, Dr. H. Guy Dain and later Sir Henry Brackenbury. After its review it concluded that further advances on the general lines of health insurance systems adopted by other countries would not meet New Zealand conditions.

At the end of 1935 the labor government swept into power, the strongest plank in its platform being national health insurance. Cooperation was immediately offered by the profession, which asked for the confidence of the government in any proposals it might decide on. The government set up an investigation committee in its first year of office and called evidence from various organizations. This committee was formed on a purely party basis, no one member possessing the technical or professional knowledge necessary to the successful delineation of such a scheme. However, the British Medical Association made representations, reviewing existing organizations, advocating greater attention to preventive medicine and research with complete service for those whose financial circumstances precluded the payment of medical fees and a contributory form of insurance for all others to enable them to provide against hospitalization, with laboratory and specialist fees. Such ideas were unacceptable to the government, which in turn expressed its intention of introducing a universal free medical service based on free general practitioners and specialists with vague references to payment of £1 per head of population plus mileage expenses, thus introducing in the view of the profession an undesirable degree of control of both doctors and public.

In 1937 Sir Henry Brackenbury, an advocate of national health insurance, visited New Zealand and after consultations with crown ministers and the association reviewed conditions, eventually admitting that, in addition to a free system being undesirable, the profession could not offer the public the present high standard of service for less than £1.11.6 per head of population, excluding specialist services. Battle was then joined. At the request of the minister of health a carefully drawn statement was prepared by the British Medical Association, explaining the curiously personal nature of a doctor's work. Medical service does not lend itself readily to terms of contract like the supply of a definite number of standard articles or the giving of so many hours of specific work. Modern methods of mass production and the moving work platform are not suitable for medical work. It became obvious at this stage that political considerations rather than those of practical necessities were to be paramount, one minister remarking that the association's scheme would "leave the doctors free to fix their own fees over a greater part of the work." Complete socialization and political control was obviously the government's aim. A parliamentary bill was drawn up on the lines of a universal scheme. No consultation with the profession was held, but the bill was passed in December 1938, after which negotiations between the association and the government ceased. Nevertheless preparations for the introduction of the scheme passed into abeyance, no explanation being forthcoming. With unconscious and rather satirical humor, the first benefit introduced was free mental hospital treatment, commencing on April 1, 1939, following which, in spite of protests by the association, a contract for maternity services was offered to the general practitioners. This failed. After many weeks a compromise was effected by allowing those doctors who so wished to continue the practice of obstetrics by private arrangement among patients willing to bear their own costs. The hospital benefit was introduced in July 1939. It was agreed by the profession that there could be no question of withdrawing honorary staffs, the feeling being that when hospitals ceased to be exclusively benevolent institutions it was no longer incumbent on the profession to give honorary service, especially as they were now open to all, exclusive of means. Consequently it was agreed to change to the part time stipendiary service. There were regrets—a loss of idealism as against the introduction of the wage earner's attitude of mind. With the passage of honorary service, medicine in New Zealand sustained a loss.

In the meantime war broke out and it became clear that the demands of war service were reducing the number of doctors available for civil practice. With free maternity and hospital benefits it was expected that the government would have the good sense to delay proposals for general practitioner service. But in February 1940 the government resumed negotiations with the association. The scheme was implemented by the drawing up of contract forms to be signed by both patient and doctor, the first of which were issued in March 1941. In spite of such cavalier treatment, the attitude of the association was clear. A deadlock had arisen. Contracts had been issued but not signed. After six weeks forty-nine doctors were reputed to have signified their willingness to work the scheme, although they had not necessarily signed contracts. Now another compromise has been reached. A universal general practitioner

service, estimated to cost £1,400,000 a year, will commence on November 1. The service will not include specialist treatment, administration of anesthetics, examinations for insurance purposes, treatment of venereal disease or extraction of teeth by a doctor. The New Zealand public has been paying for the service since 1939 by a 1 shilling in the pound wage tax and a quarterly levy of 5 shillings. The Auckland branch of the British Medical Association states that doctors will issue receipts to patients, who may obtain refunds from the health department. Fixed charges are 7/6 for ordinary consultations and 12/6 for night or Sunday consultations plus 1/3 per mile for traveling. Members of the profession are asking for a nonpolitical commission to investigate the problem of providing the best health services for New Zealand. Meanwhile, it has become increasingly evident that there is a serious shortage of qualified men to fulfil both the ordinary demands of civilian care and the special needs of the war.

BUENOS AIRES

(From Our Regular Correspondent)

Oct. 22, 1941.

Fertility of Patients with Mental Diseases

The question of the fertility of patients with mental diseases was discussed by Dr. E. E. Krapf of the Hospicio de las Mercedes in Buenos Aires before the Sociedad Argentina de Criminologia. It concerned a critical evaluation of the German sterilization measures. Krapf said that there has been an alarming increase in socially unfit persons. One possibility to check this increase consists in the energetic reduction of the hereditary transmission of mental diseases. In the United States, in Switzerland and in Scandinavia legally regulated attempts have been made in this direction. The German sterilization law of 1933, a compulsory law, not only refers to mental defectives but is later to be extended to other persons whose propagation seems undesirable, such as habitual criminals and vagabonds.

In drawing up this law, it has not been considered that disease is rarely transmitted directly. The number of the schizophrenic, for instance, is estimated at 1 per cent of the German population, whereas the number of heterozygotes, who are apparently healthy but are capable of transmitting schizophrenia, is estimated by Rüdin at 19 per cent. These, who are the more dangerous, cannot be sterilized without leading to racial suicide. The Munich psychiatrist Bumke declared in 1939 that the relative increase in mental defectives is due to their greater fertility compared to that of healthy subjects. On the basis of these opinions Krapf contends that the central problem of every objective discussion of eugenic sterilization is the problem of absolute and relative fertility of mental defectives. The justification of compulsory sterilization will stand and fall with further investigations on this problem.

The percentage of hereditary cases is not yet known with desirable exactness, although the number of hereditary cases is doubtless quite high. Earlier investigations, which are concerned only with the feebleminded and with the fertility of their fathers, are not conclusive for various reasons. However, an investigation by Dr. Juda at Rüdin's Munich institute demonstrated that the difference between the fertility of feebleminded and normal subjects is really slight and that with exact statistical evaluation it disappears almost completely; that is, if the higher infant mortality in the families of the feebleminded is taken into consideration. The fertility of the near relatives of the feebleminded shows an analogous behavior. Thus these investigations, which, in view of their origin, are certainly decisive for the problem of sterilization in Germany, do not indicate a danger from progressive increase of the relative number of feebleminded.

Statistically evaluated investigations on schizophrenia, conducted by the Swedish physician Essen-Möller at Rüdin's institute, disclosed that the fertility of the schizophrenic amounts to hardly 50 per cent of that of the normal population. Their low fertility is corroborated also by other investigations. Computations based on a frequency of 1 per cent, assuming a recessive monohybrid type of heredity lead to the conclusion that a complete sterilization of all the schizophrenic for twenty generations, that is, for six hundred years, would reduce their number to 10 per cent of the present number. According to results obtained by Essen-Möller the time required would be one thousand two hundred years, and even this computation is regarded as too optimistic if a considerable reduction of schizophrenia is to be obtained by sterilization. It was observed also that the number of schizophrenic sons of schizophrenic fathers is extremely small and that the larger number of these patients are the offspring of apparently healthy fathers, so that sterilizing intervention is impossible.

In persons with manic depressive insanity the investigations of Essen-Möller disclosed a fertility that was about identical with that of the normal population. Although a large percentage of these patients are the offspring of fathers with the same defect, other reasons make the suppression of this disease by sterilization impossible.

The fertility of the epileptic was disclosed by Essen-Möller to be less than that of normal persons and hardly higher than that of the schizophrenic. Moreover, the mortality of persons with epilepsy is eight times as high as that of normal persons, so that their propagation is greatly restricted. There is here the same tendency of self elimination as in case of schizophrenia, and here, as there, the direct heredity is not frequent. Thus there is only a slight possibility that the sterilization of epileptic fathers will produce a considerable reduction in the number of these patients.

Krapf also considers the fertility of habitual criminals. Again investigations in Rüdin's institute by F. Stumpfl demonstrated that habitual criminals are much less fertile than are occasional criminals and the average population, to which must be added the higher infant mortality of the first. This goes so far that Stumpfl speaks of the biologic self elimination of habitual criminals and their families.

None of the categories mentioned here have a higher than normal fertility, and therefore the aforementioned assertion of Bumke is not correct. Furthermore, it must be considered that before the defect is diagnosed and thus before there is a possibility of sterilization 67 per cent of the sons of the schizophrenic and 90 per cent of the sons of those with manic depressive insanity have already been born. This eliminates other foundations for sterilization and for this entire conception of public hygiene which only undermines confidence in the physician without promoting the welfare of the state. This investigation of Krapf has demonstrated definitely that it is impossible to avoid mental diseases by the systematic elimination of hereditary factors.

Marriages

ROY STINSON BIGHAM JR., Charlotte, N. C., to Miss Glenna Elvin Gochenour in Charlottesville, Va., Nov. 15, 1941.

JOSEPH ENNALLS MUSE JR., Baltimore, to Miss Anne Marie Gorman at Takoma Park, Md., Nov. 20, 1941.

GUSTAVUS A. PETERS, Franklin, Ind., to Miss Hilda Hartman in Rochester, Minn., Oct. 10, 1941.

RANDALL F. WHITE, Portland, Ore., to Mrs. Thelma Davenport of Eugene in October 1941.

EDWIN BURTIS AYCOCK to Miss Jean Hodges, both of Greenville, N. C., in November 1941.

DANIEL H. SHEERAN to Miss Rita Mary McGinnis, both of Flint, Mich., Sept. 27, 1941.

HARDIE B. ELLIOTT JR. to Miss Wilhelmina Meyer, both of Flint, Mich., Oct. 2, 1941.

Deaths

LeRoy S. Peters ● Albuquerque, N. M.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; member of the American Association for Thoracic Surgery and the American College of Chest Physicians; fellow of the American College of Physicians; for many years a director of the National Tuberculosis Association; past president of the American Sanatorium Association and the Southwestern Medical Association; associate medical director of the Cottage Sanatorium, Silver City, from 1909 to 1913 and the Albuquerque Sanatorium from 1913 to 1917; medical director of the St. Joseph Sanatorium from 1917 to 1925; aged 59; died, Dec. 17, 1941, of coronary occlusion.

Everett A. Sheldon, Bellflower, Calif.; College of Medical Evangelists, Loma Linda, 1925; member of the California Medical Association; fellow of the American College of Surgeons; instructor in surgery at his alma mater; member, visiting staff, Long Beach Community Hospital, Long Beach; junior attending surgeon, Los Angeles County Hospital, Los Angeles; aged 40; on the courtesy staff of the White Memorial Hospital, Los Angeles, where he died, Dec. 2, 1941, of Banti's syndrome and hemorrhages from esophageal varices.

William Sturgis Thomas ● New York; National University Medical Department, Washington, D. C., 1892; was president of the New York State Society of Pathologists; veteran of the Spanish-American and World wars; was made a Chevalier of the Legion of Honor by the French government; for many years served on the staff of St. Luke's Hospital in various capacities; in 1939 member of the advisory committee of the New York World's Fair; author of several books; aged 70; died, Dec. 21, 1941.

Laverty H. McCuskey, Moundsville, W. Va.; College of Physicians and Surgeons, Baltimore, 1897; member of the West Virginia State Medical Association; past president of the Marshall County Medical Society; member of the draft board during the World War; for many years county school physician; aged 71; died, Dec. 18, 1941, of coronary thrombosis.

Eugene Madison Parker ● Houston, Texas; University of Illinois College of Medicine, Chicago, 1934; member of the Radiological Society of North America, Inc., and the American College of Radiology; on the staff of St. Joseph's Infirmary; aged 38; died, Dec. 4, 1941, in Granite City, Ill.

Stephen Aloysius Yesko, Washington, D. C.; Georgetown University School of Medicine, Washington, 1922; at one time assistant professor of anatomy at his alma mater; aged 45; died, Nov. 5, 1941, in the Garfield Hospital of gastric hemorrhage, esophageal varices and cirrhosis of the liver.

Robert Vandenberg White, Scranton, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1900; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 64; on the staff of the Hahnemann Hospital, where he died, Dec. 8, 1941.

Sidney L. Scott, Fredericksburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1901; New York Homeopathic Medical College and Hospital, New York, 1903; member of the Medical Society of Virginia; aged 62; died, Dec. 16, 1941, of coronary thrombosis.

Peter Augustine Reque ● Brooklyn; University of Vermont College of Medicine, Burlington, 1896; fellow of the American College of Physicians; served during the World War; aged 72; died, Dec. 4, 1941, in the Long Island College Hospital of coronary occlusion.

Winfred Bryant Post ● Carthage, Mo.; Missouri Medical College, St. Louis, 1897; member of the American Academy of Ophthalmology and Otolaryngology; on the staff of the McCune-Brooks Hospital; aged 70; died, Dec. 22, 1941, of coronary occlusion.

William Rhinehart Schick, Chicago; University of Illinois College of Medicine, Chicago, 1940; first lieutenant in the medical reserve corps of the United States Army; aged 31; was killed, Dec. 7, 1941, in action during the Japanese raid on Pearl Harbor.

Bina Seymour, Springfield, Mass.; New York Medical College and Hospital for Women, New York, 1913; aged 71; died, Dec. 8, 1941, in the Springfield Hospital of rupture of the abdominal aorta resulting from the pressure of a large calcareous plaque.

Richard Redner Rall ● Lieutenant (j. g.) U. S. Navy, Pearl Harbor, T. H.; Loyola University School of Medicine, Chicago, 1934; entered the Navy Aug. 5, 1936; aged 32; was killed, Dec. 7, 1941, in action during the Japanese raid on Pearl Harbor.

William Samuel McCormick, Arlington, Tenn.; Memphis (Tenn.) Hospital Medical College, 1885; at one time justice of the peace; formerly chairman of the county court and of the county school board; aged 77; died, Dec. 16, 1941, in Memphis.

George M. Rutledge, Ste. Genevieve, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1889; member of the Missouri State Medical Association; aged 78; died, Dec. 10, 1941, in the Alexian Brothers' Hospital, St. Louis, of pneumonia.

Walter Fairbanks Sawyer, Fitchburg, Mass.; Harvard Medical School, Boston, 1893; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; consulting surgeon, Burbank Hospital; aged 73; died, Dec. 8, 1941.

Hervey Barbour Scott, Irvine, Ky.; Hospital College of Medicine, Louisville, 1906; at one time assistant clinical professor of psychiatry at the University of Louisville School of Medicine; aged 62; died, Dec. 14, 1941, of lobar pneumonia.

William R. Williams, Greenville, Ind.; University of Louisville (Ky.) Medical Department, 1881; aged 84; died, Dec. 1, 1941, of injuries received when struck by an automobile as he was attempting to cross the street.

Louis Stockton Walton ● Altoona, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; past president of the Blair County Medical Society; served during the World War; aged 64; died, Dec. 5, 1941.

Archibald Herbert Martin ● Lynn, Mass.; College of Physicians and Surgeons, Boston, 1896; for many years on the staff of the Lynn Hospital; aged 69; died, Dec. 13, 1941, in the Palmer Memorial Hospital, Boston.

Clarence Henry Wieneke, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; member of the Illinois State Medical Society; aged 51; died, Dec. 15, 1941.

George Walter Warren, Washington, D. C.; Baltimore University School of Medicine, 1892; member of the Medical Society of the District of Columbia; aged 78; died, Dec. 15, 1941, in Wilson, N. C., of pneumonia.

William A. Phelps, Thebes, Ill.; Kentucky School of Medicine, Louisville, 1884; member of the Illinois State Medical Society; aged 86; died, Dec. 7, 1941, of cerebral arteriosclerosis and carcinoma of the face.

John Franklin Scarborough, Port Gibson, Miss.; Memphis (Tenn.) Hospital Medical College, 1910; member of the Mississippi State Medical Association; served during the World War; aged 61; died, Dec. 11, 1941.

William O. Ziemer, Cleveland; Western Reserve University Medical Department, Cleveland, 1904; on the staff of the Lutheran Hospital; aged 59; died, Dec. 2, 1941, of coronary sclerosis and myocardial infarction.

Franklin Ivan Flagg ● Boston; Middlesex College of Medicine and Surgery, Cambridge, Mass., 1921; was on the staff of the Boston State Hospital; aged 54; died, Oct. 10, 1941, of coronary thrombosis.

J. M. Teter, Beaver, W. Va.; Baltimore Medical College, 1896; member of the West Virginia State Medical Association; aged 68; died, Dec. 10, 1941, in the Raleigh General Hospital, Beckley.

Austin E. Popham, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1904; served during the World War; aged 62; died, Dec. 8, 1941, of cerebral hemorrhage and hypertension.

Russell Burton Main, Norris City, Ill.; Columbian University Medical Department, Washington, D. C., 1900; served during the World War; aged 64; died, Dec. 26, 1941, of heart disease.

DeWitt Clinton Smith, Dunkirk, Ohio; Miami Medical College, Cincinnati, 1874; aged 93; died, Dec. 5, 1941, in the McKitrick Hospital, Kenton, of angina pectoris.

Hilmar Carl Schmidt, North Hollywood, Calif.; Hering Medical College, Chicago, 1908; aged 66; died, Dec. 7, 1941, of coronary occlusion.

D. Manners Washburn, New Richmond, Ind. (licensed in Indiana in 1897); aged 90; died, Dec. 11, 1941.

Bureau of Investigation

FRAUDULENT "CURES" FOR ASTHMA, HAY FEVER AND SINUS DISORDERS

Post Office Department Debars Five of These from the Mails

In the twelve months from June 1940 through May 1941 five "cures" for asthma, hay fever and sinus troubles were declared fraudulent by the Post Office Department and banned from the mails.

As-Ma-Norm.—Under the title The Norm Company one Otto Beck of Englewood, N. J., sold this nostrum through the mails as an asthma treatment. Among the representations made in connection with its sale that the Post Office Department alleged were false and fraudulent were that it would afford effective relief in bronchial asthma, that it contained no harmful drugs and that its sale was approved of by the Post Office. Accordingly Beck was cited to show cause why a fraud order should not be issued against his business. He neither appeared at the hearing of the case nor sent a representative, though previously he had written the department that he was willing to abandon the enterprise. At the hearing a government chemist testified that the treatment came in gelatin capsules each of which contained 6.99 grains of yellow-brown powder consisting of 4.48 grains of potassium chloride, 0.27 grain of ephedrine sulfate and the rest was rhubarb. An expert medical witness for the government brought out the fact that bronchial asthma is a symptom complex characterized by hypersensitivity to certain allergens or substances that produce bronchial spasms. These allergens may be ingested or inhaled or may be actual proteins existing as such in the victim's body. He further testified that the ingredients of As-Ma-Norm are common drugs whose therapeutic effects and limitations are familiar, and that rhubarb and potassium chloride offer no relief in asthma. He showed further that ephedrine, even when given in the proper dosage, which is from four to seven times the amount contained in As-Ma-Norm capsules, is only a temporary palliative employed in certain instances for the treatment or relief of asthma and that the amount of ephedrine obtained by users of As-Ma-Norm when taken according to directions is so small as to be inconsequential in the treatment of asthma. The witness further brought out, among other things, that ephedrine, instead of being a harmless drug, is deleterious to persons suffering from high blood pressure, diabetes, thyroid disturbances and heart trouble. On May 10, 1941 the Post Office issued a fraud order against the Norm Company and its officers and agents.

Dr. Hayle's Method.—This piece of quackery, also known as "Dr. Hayle's Australian Method" and "Dr. Hayle's Treatment," apparently originated with a C. R. S. Woolams of Auckland, New Zealand, who operated under the names Charlton Sinclair, Limited, and Charlton Sinclair, Manager. Its American agent was a Sylvan Mallinson, who did business from Los Angeles under the names of Gilbert H. Thayson and the Thayson Company. It was sold under the representations that it contained no harmful drug and that, when used as directed, it would within five minutes afford "amazing" and "magic-like" relief from asthma and hay fever attacks and remove the causes of these, besides preventing further attacks. The Post Office investigation revealed that the "treatment" was made up for Mallinson by a Los Angeles pharmacy and sold in three parts: a liquid, "Dr. Hayle's Prescription H. L. 67," composed essentially of potassium iodide, 9.8 grains per hundred cubic centimeters; a powder, "A. C. 43," consisting chiefly of potassium nitrate and sodium sulfate, carbonate and bicarbonate; and a salve, "B. 30," to be used in the nostrils, which contained camphor, menthol and eucalyptus in a petrolatum base. With these medicines went some "diet advice" directing the customer to eat sparingly of starchy foods and take liberal portions of fruits, vegetables and certain meats. The government presented expert medical testimony to the effect that one part of the treatment, instead of being harmless, contained potassium iodide, which might make its use dangerous in cases of asthma caused or complicated by tuberculosis; that the combination was not an "amazing Australian formula," since its ingredients were all common drugs, and that it would not cure asthma or hay fever. Accordingly a fraud order was issued on June 4, 1940 against all the names under which the concerned operated.

Sinus-Sious.—This was promoted by a Mrs. V. Herrick, who operated under the name Approved Products, Ltd., Oak Park, Ill. A government chemist who analyzed it reported that it consisted of 48.55 per cent of sugar, 28.2 per cent of boric acid and 23.2 per cent of starch. It was to be snuffed into each nostril from the palm of the hand, morning and night. Mrs. Herrick was cited to appear at a government hearing and show cause why a fraud order should not be issued against her business, but instead she merely filed a written answer which was in effect a general denial of the charges. At the hearing the government presented expert medical testimony showing that many factors may underlie sinus disturbances and that since such disorders must be treated according to their causes no one method is of value in a large number of cases. Hence for Mrs. Herrick to represent her treatment as generally effective was declared to amount to false and fraudulent representation. A fraud order debarring the Approved Products, Ltd., and its officers and agents from the mails was issued on July 9, 1940 by the Post Office Department.

Orbert Asthma Treatment.—From La Feria, Texas, a Mrs. E. G. Orbert, a farm housewife, trading under the names M. Orbert and Orbert 5, promoted through the mails a "simple home treatment" for asthma and hay fever. No medicine was sold, but by sending $1 the customer received a set of directions for treating the diseases named. First, he was told to "step eating for three to four days" and live on grapefruit juice and oranges. Next, he was to follow a diet free from proteins and starches and to return to the "juice" program for a few days every two or three weeks. This regimen was to be followed until the customer was "completely relieved of the asthma." After that he was to live on a diet that resembled the vagaries of a "raw food" faddist. At the hearing of this case Mrs. Orbert did not appear or send a representative. Expert medical witnesses testified that Mrs. Orbert's generalized dietary was wholly worthless for effectively treating or permanently relieving either asthma or hay fever, as victims of these disorders would not be desensitized by omitting from their diets the foods proscribed in the Orbert "treatment." On the contrary, the evidence showed that asthmatic patients who followed the rather unvaried Orbert dietary measures might be even more subject to asthma than if they had never taken the "treatment." Accordingly, a fraud order was issued on May 28, 1940 debarring the Orbert scheme from the mails.

Shackelton's Inhaler and Shackelton's Inhaler Compound.—These are put out by the Shackelton Inhaler Company of Grand Rapids, Mich., which up to around 1940 was said to be advertising that its inhaler had been "sold for 59 years." From inquiries sent to the Bureau of Investigation from 1918 to 1934 it appeared that the concern was located at Kansas City, Mo., during that period. Since 1935 it seems to have been doing business at Grand Rapids. Investigation by the Post Office Department revealed that the treatment consists of an inhaler and a "filler" which, according to a government chemist, is a water-alcohol solution containing 81.6 per cent of alcohol, 0.34 Gm. per hundred cubic centimeters of methyl salicylate and 0.36 Gm. per hundred cubic centimeters of camphor, with pine tar, eucalyptol and balsamic substances. An expert medical witness testified for the government that though the vapor released from this mixture would give a mild temporary relief from nasal symptoms while being inhaled, its total drug action would be no more than that of a feeble irritant with no germicidal properties, would not dry up the secretions accompanying many respiratory disorders or constrict the mucous membranes of the nasal tract so as to remove any obstruction caused by engorgement thereof. He further testified that upper respiratory disorders are numerous and their causes so varied as to make it impossible to treat all of them effectively with any one stock preparation, such as the Shackelton product. Summed up, the evidence convinced the Post Office solicitor that the business was a scheme to obtain money through the mails by means of false and fraudulent pretenses, representations and promises and accordingly it was debarred from the mails by a fraud order issued on Dec. 31, 1940 against the Shackelton Inhaler Company and its officers and agents.

VARIOUS "CURES" BANNED FROM THE MAILS

Abstracts of Some U. S. Post Office Fraud Orders

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some fraud orders not dealt with previously:

Acme Laboratory.—This Kansas City, Kan., concern, also known as Acme Laboratories and run by a George A. Johnson, was charged by the Post Office Department with selling an eye treatment, "D-I-T," through the mail under false and fraudulent representations. Among these were that the product would afford the quickest possible relief in counteracting infection of the eyes and overcoming swelling, burning and irritation; preserve and prolong normal vision; retard gradual loss of sight due to old age; dispense with the necessity of wearing glasses or the frequent changing of glasses caused by "old age eyes," and cure the disorders known as keratitis and conjunctivitis. The Acme people were further charged with selling by mail a product, "Oroseptol," under the fraudulent representation that it was a "powerful germ killer" and that it would remove the cause of, and restore to a normal healthy state, all soft, sore, bleeding and receding gums, cure pyorrhea and prevent any recurrence of these conditions or the necessity of tooth extraction, or that Oroseptol would overcome "common" sore throat, swollen tonsils, fever sores and other mouth and throat disorders, regardless of their cause. At the hearing of this case a government chemist testified that D-I-T came in two preparations, called "No. 1" and "No. 2"; that the first named contained about 0.7 Gm. of boric acid per hundred cubic centimeters of the solution, plus some camphor and traces of acetanilid and epinephrine, and that "No. 2" was an acid liquid consisting essentially of 0.25 Gm. of zinc sulfate per hundred cubic centimeters of the solution and a trace of iron. Further, the chemist testified that he had found Oroseptol to be a solution of soap, eucalyptol, pine oil and cinnamon. The government produced expert medical testimony which showed that neither of these treatments would be substantially effective for the conditions played up in the advertising and on Feb. 23, 1940 a fraud order was issued against the names Acme Laboratory and Acme Laboratories and their officers and agents debarring them from the further use of the mails.

Correct Sight Club.—This outfit at Allentown, Pa., whose director was a James K. Bowen, sold through the mails some so-called instructions for the elimination of faulty vision. Among the false and fraudulent representations with which the Post Office Department charged it were that its instructions were "personal" to each remitter and would enable him to correct errors of refraction, far sightedness, near sightedness and astigmatism without the use of glasses; that by following these instructions he could restore healthy and natural eyesight and discard his glasses without loss of acuity and bring his "whole body" back to a "younger" stage of life. The instructions were found to consist of six lessons entitled respectively "Relaxation," "Details," "Look and See," "Instantaneous," "Steadiness" and "Shifting." At the hearing of this case the government produced an optical expert who testified that the treatment in question was an ineffective and unscientific one, and Bowen's testimony indicated a conspicuous lack of knowledge about the eye and its disorders. Accordingly, on Oct. 11, 1940 he was debarred from the mails by a fraud order issued against him, the Correct Sight Club and its officers and agents.

Der-Mo-Topic Laboratories.—In January 1940 one W. F. Gilroy, president of this concern at Pittston, Pa., was ordered to show cause why a fraud order should not be issued against his firm for using the mails in selling "Der-Mo-Topic Medicated Special Cream" and "Der-Mo-Topic Psoriasis Cream" under false and fraudulent representations. Among these were that the first-named product would remove hemorrhoids, acne, eczema, boils, bunions, warts and other cutaneous disorders, besides preventing baldness and overcoming dandruff, and that the "Psoriasis Cream" would cure psoriasis. In the hearing of this case by the Post Office Department it was revealed that these two products, although sold under different names, are one and the same thing, consisting essentially of about 0.4 per cent of iodine, about 1 per cent of coal tar and a trace of sulfur, all incorporated in a fixed oil base. An expert medical witness for the government testified that the conditions that Der-Mo-Topic products were represented to correct may be due to many causes which can be effectively treated only by scientific methods and that the Der-Mo-Topic products therefore would be of little avail. On March 2, 1940 the Post Office issued a fraud order debarring the Der-Mo-Topic Laboratories from the use of the mails.

Faultless Laboratories.—This Nashville, Tenn., concern was run by a V. A. Tayntor, who also used the name L. B. Taylor in selling through the mails his "Sulpho-Matic" treatment. This he represented as a cure for all forms of rheumatism and a remedy for any case of stomach ulcers, liver, kidney and gallbladder troubles, nervous conditions, blood disorders, tumors, cutaneous diseases, hemorrhoids, fistula and pellagra. When ordered by the Post Office Department to show cause on Aug. 7, 1940 why a fraud order should not be issued against his business, Tayntor sent a letter denying the charges but did not appear at the hearing. The government produced expert medical testimony to show that rheumatism appears in too many forms and results from too many causes to be amenable to any one treatment and that the same could be said of the other diseases for which the Sulpho-Matic was advertised. Government chemists reported that it consisted of six aqueous solutions respectively containing the following (in grams per hundred cubic centimeters): *A-1 Morning*, magnesium sulfate, 35; *B-1 Morning*, magnesium sulfate, 38.3, an oily liquid with an odor of peppermint, 1.2, and a trace of sulfur, as well as indications of saccharin; *A-2 Noon*, potassium bitartrate, 6.2, citric acid, 12.48, and anhydrous ferric oxide, 0.09, with wintergreen flavoring; *B-5 Noon*, potassium bitartrate, 5.5; *A-3 Night*, sulfur, 18.43, and gummy material, 4.54; *B-6 Night*, sulfur, 12.73, and gummy material, 4.10. On Oct. 2, 1940 the Post Office issued a fraud order against the names Faultless Laboratories, L. B. Taylor and their officers and agents, debarring them from further use of the mails.

Marcell Mineral Laboratory.—This Pasadena, Calif., concern was known also as The Marcell Mineral Company, The Miracle Mineral Laboratory, The Institute of Saneology and Marcell, The Nature Man. It also used the name Don Marcell, but the Post Office Department's investigation brought out that the person behind it was an E. *F.* Marcell. He was reported to be a son of one Marcus B. Marcell, who had founded the business around 1920 in Portland, Ore., and apparently moved it to Pasadena some years later. Old records show that Marcus B. Marcell, who, according to a Pasadena newspaper, died in August 1939, had claimed that he was a "naturopathic physician" and also was ordained in Pasadena in 1930 as "a Practitioner of the Spiritual Science Church." In spite of these leanings toward "drugless healing" cults, however, he ran a "patent medicine" business in which he was succeeded by his son, E. F. Marcell, promoting through the mails two nostrums in particular. One of these, "Miracle Mineral No. 1," according to a government chemist, consisted of 35 per cent of sulfates (including those of sodium and potassium), 16.75 per cent of anhydrous ferric oxide and smaller amounts of silica, phosphate, and aluminum and magnesium oxides. The other, "Marcell's San-O-Min Miracle No. 2 Vaginal Suppositories," the chemist reported, contained 16.1 per cent of anhydrous ferric oxide and lesser quantities of aluminum and magnesium oxides, sulfate, silica, sodium, potassium and phosphates. At the hearing of this case an expert medical witness testified for the government that the "No. 1 Miracle" would not purify the blood or benefit the liver, kidneys, skin or nerves as claimed, nor would the suppositories remove the cause of female disorders, and that neither of these products was "absolutely harmless." Hence Marcell's representations for them were found to be a scheme for obtaining money by fraudulent means, and the mails were closed to the concern on Sept 27, 1940. Incidentally *Minnesota Medicine* reported in November 1940 that in the previous month Edward *F.* Marcell of Pasadena was fined $400 plus cost of $5.18 in a district court in Minnesota for practicing medicine without a license in promoting a "health course" consisting of minerals in capsule form at $58 per "patient" and was ordered to leave the state and cease advertising in the Minnesota papers.

Reed's Cut Rate Drug Store.—This concern at Clarksburg, W. Va., had as proprietors a Lenard Gotlieb and his wife, Sara. They admitted to the Post Office inspectors, however, that they did not manage the store. Nevertheless, the Post Office investigation revealed that the Gotliebs used the store's name to carry on a mail-order business in which they sold "Prescription Female Capsules" and auxiliary products for menstrual disorders. The Post Office developed evidence that an inquirer who wrote to the concern for an abortion treatment was advised to buy the "Female Prescription Capsules triple strength, a regular $10.00 prescription that costs you $7.50 plus tax." Further, the Post Office reported, the Gotliebs sent this inquirer the "prescription" with adjunct quinine and laxative preparations for accomplishing the purpose in question. The Post Office was convinced that the Gotliebs' business was illegal in its nature and also that it was carried on under the false, assumed and fictitious names of Reed's, Reed's Cut Rate and Reed's Cut Rate Drug Store, and on June 12, 1940 a fraud order was issued to debar the scheme from the mails. On October 22 another government agency, the Federal Trade Commission, ordered Lenard and Sara Gotlieb, trading as Reed's Cut Rate Store and Fountain Cut-Rate Stores at Clarksburg, W. Va., to cease and desist from certain misrepresentations. Among these were that their Prescription Female Capsules, also designated as "Lady Lydia Female Capsules," are a harmless and effective treatment for delayed menstruation, since the product might cause gastrointestinal disturbances, hemorrhage of the pelvic organs and, in the case of pregnancy, might produce uterine infection and blood poisoning. This case was abstracted in THE JOURNAL March 15, 1941, page 1178.

Scioous Laboratories.—This concern did business from Erie and Corry, Pa., selling through the mail "Panaroid" and "Bilada Tablets" for hemorrhoids and constipation and "Carthage" for sinus trouble. According to a government chemist's testimony in this case, Panaroid consisted essentially of phenol, tannin, alkaloids from belladonna, stramonium and possibly hyoscyamus with a small amount of epsom salt and ferric oxide. The analysis did not reveal the presence of three other drugs that the promoter claimed were present—quinine sulfate, lead acetate and benzocaine. The Bilda Tablets were reported to consist essentially of carbonates of calcium and sodium with cascara, phenolphthalein and a small amount of bile salts. Carthage, the chemist reported, was composed chiefly of ephedrine hydrochloride, ethyl aminobenzoate and oils of camphor, menthol, cinnamon and pine. As expert medical testimony for the government showed that these treatments were not as effective as represented, a fraud order was issued on March 22, 1940 debarring the Science Laboratories from further use of the mails.

Washington Health Research Laboratories.—Around 1936 one Ben S. Buckmaster was reported to be treating victims of cancer in the Tacoma, Wash., area with a medicine that he alleged was "a miracle cure" and had been handed down to him through four generations in his family. It developed that the cure then consisted of balsam copaiba, spirit of niter and haarlem oil and was made up by a Tacoma druggist. In 1939, it is said, Buckmaster associated himself with a George Baydo in promoting the product as "Buck's Special Mixture." Within six months, however, the two men were said to have disagreed and each proceeded to put out the nostrum separately and to claim his was the original. One Tacoma man is said to have stamped as false a "testimonial" which he claimed Buckmaster pretended to have obtained from him. "Testimonials" also were used by Baydo in his circulars put out under the name Washington Health Research Laboratories. When he began to sell Buck's Special Mixture through the mails his scheme came within the province of the Post Office Department. Finally that agency ordered him to show cause on Sept. 18, 1940 why a fraud order should not be issued against his business, but instead of attending the hearing he merely sent a written reply denying the charges. The Post Office showed that Baydo had sold his "cure" not only for cancer but also for ulcers, tumors, tuberculosis, blood diseases, stomach and female disorders, eczema, hemorrhoids, rheumatism and some more things! In one case it was shown that Baydo had even represented it as a cure for syphilis and gonorrhea. A government chemist testified that the mixture consisted essentially of an alcoholic, oily fluid containing ethyl nitrite, sulfur and copaiba. As expert medical testimony showed that such a mixture would not cure any of the diseases enumerated, a fraud order was issued on Oct. 2, 1940 closing the mails to the Washington Health Research Laboratories, George Baydo and their officers and agents.

Z-Rin Products Co.—This concern at South Bend, Ind., had as its president and general manager a John Zrinyi and sold through the mails "Zinex Special Ointment" for overcoming "pile conditions" and "Z-Rin," which was represented to cure the "agonizing" pains of various forms of rheumatism. At the hearing of the case a government chemist testified that the first-named product was essentially a mixture of mercury and nitric acid combined as a weak or diluted ointment of mercuric nitrate and that Z-Rin was chiefly composed of salicylic acid, potassium acetate and common sugar, with small amounts of plant extractives including colchicine and cimicifuga. Since expert medical testimony was produced to show that these nostrums would not cure the conditions for which they were advertised, the Post Office on Sept. 13, 1940 issued a fraud order against the names "Z-Rin Products," "Z-Rin Products Co." and John Zrinyi.

Correspondence

EXCRETION OF SILVER IN URINE

To the Editor:—We have just read the communication by Dr. Victor Jacobson in THE JOURNAL of Nov. 1, 1941, page 1557. It may be of interest that one of our unpublished observations confirm his point of view that silver is not excreted in the urine. Some years ago we studied a case of obvious argyria, and we tried by the technics which we had used in cases of lead poisoning to withdraw the silver from its depots in the body. In spite of a prolonged investigation, with fairly heavy deleading treatment, no measurable amount of silver was ever found in the urine. From this we decided that lead and silver differed greatly in their metabolic responses in the body.

JOSEPH C. AUB, M.D.
LAWRENCE T. FAIRHALL, PH.D.
Boston.

PSYCHOTHERAPY

To the Editor:—Dr. Andrew D. Hart Jr.'s comment in THE JOURNAL, Dec. 6, 1941 anent Dr. Roy Grinker's communication of October 18 contains many pertinent and justifiable criticisms of the attitude of the medical profession toward the neurotic patient.

Dr. Hart's apt quotation "It is the great error of our day in the treatment of the human body that physicians separate the soul from the body" is only partially true, for this quotation implies that the medical profession generally does not recognize or treat the "soul." As a matter of fact the "soul" is recognized and treated by every practicing physician every day whether he does it consciously or unconsciously. A good example of conscious psychotherapy is the immemorial use of the placebo. The adroit use of personality, or bedside manner, is an unconscious use of psychotherapy.

It is perhaps the undisciplined use of psychotherapy, whether conscious or unconscious, for which the average practitioner should be chiefly criticized. Add to this the impatient criticism of the "neurotic" in the unconscious of the physician and Dr. Hart's criticisms become fully justified.

How many of us are aware of the fact that the "bedside manner" produces a potent and at times inimical, at times beneficial, force which the psychologists term "transference"? Beneficially used, the transference is a therapeutic phenomenon of considerable value of which the average practitioner not primarily trained in the technic of psychotherapy is now almost completely deprived. In days gone by, in the days of the family doctor, there existed a much more perfect understanding between physician and patient. In those days the patient turned to his medical counselor for advice pertaining not only to medicine but also to his marital and family difficulties. He "exposed his soul" and received balm for it. Undoubtedly his body benefited thereby.

We all recognize the existence of psychologic components in our cases, but in most instances we do not analyze or identify them unless we are pursuing a clinical experiment. Here again, by the use of controls, we often give tacit acknowledgment to the existence of psychologic components.

It is our duty as physicians, if not inclined to devote the time or effort necessary for evaluating or analyzing the psychologic components in our patients' complaints, to refer them to properly qualified psychotherapists who should act as the catalyst welding together the busy doctor and his patient. Undoubtedly one difficulty heretofore has been the agnostic attitude of the profession generally. If the average medical practitioner is asked "What about psychotherapy?" he probably will answer "Well, there is something to it." That is a step forward. The negativistic skepticism of twenty years ago has been replaced by tolerant agnosticism. This is an indication of healthy progress in view of the fact that the scientific history of the last three hundred years has conditioned the medical profession against intangibles. It was only after Charcot, Freud and Pavlov that the psychologic factors were again recognized in health and disease. It is now a well accepted principle that many manifestations of psychogenic disorder are mediated through the various physiologic systems of the body. There is good evidence that thought itself has a physiologic basis. Psychotherapy today is not a specific and cannot control the psychologic processes by definite formulas. At best psychotherapy is still in its swaddling clothes. Whether it will develop into a full fledged science before medical therapy can take its place cannot be said.

It is still important that psychogenic disorders be not confused with organic pathologic conditions. A systematic psychiatric examination should be an integral part of every diagnostic process. This would often prevent many expensive and time consuming diagnostic laboratory procedures. Early discovery and correction of psychogenic pathologic conditions would prevent the creation of that tragic personality who goes from doctor to doctor becoming more and more discouraged, gaining a deeper sense of frustration and a more definite series of psychosomatic symptoms

Obviously then, and despite his conditioning against intangible etiologic factors, it is the duty of the doctor of medicine to become more sympathetic toward psychotherapy as an adjunct rather than a separate entity both for his own and his patients' sake.

HYMAN MILLER, M.D.,
HAROLD F. FREY,
Los Angeles.

ADDRESS OF OLIVER WENDELL HOLMES TO THE MEDICAL STUDENTS—1861

To the Editor:—Eighty years ago on Nov. 22, 1861 Oliver Wendell Holmes, Parkman professor of anatomy and physiology at Harvard University, addressed the medical class and ended his introductory lecture, published at the request of the class, with the following stirring words:

"It is time to bring these crowded remarks to a close. The day has been when at the beginning of a course of lectures I should have thought it fitting to exhort you to diligence and entire devotion to your tasks as students. It is not so now. The young man who has not heard the clarion voices of honor and of duty now sounding throughout the land will heed no word of mine. In the camp or the city, in the field or the hospital, under sheltering roof or half protecting canvas or open sky, shedding our own blood or stanching that of our wounded defenders, students or teachers—whatever our calling and our ability, we belong, not to ourselves, but to our imperiled country, whose danger is our calamity, whose ruin would be our enslavement, whose rescue shall be our earthly salvation!

"You cannot all follow the armies of your country to the field. But remember that he who labors for the general good at home is an ununiformed soldier in the same holy cause with those who bear arms or minister at the side of the ambulance and in the camp hospital. Larrey claimed no precedence of Dupuytren, nor Guthrie of Sir Astley Cooper. As for the nobleness of the task for which you are preparing yourselves, I do not know that I can speak of it more strongly in prose than I did in the peaceful times before these days of trial, in the form of verse, and I will so far trespass on your time and patience as to close this lecture by reading you [The Two Armies, an original poem]."

The poem is rather long to reprint, but the inspiration of these words of the beloved Holmes should help all physicians in the fight to safeguard our heritage of individual and political freedom. The call to arms today is more urgent than it was even in 1861.

B. S. OPPENHEIMER, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

CHICAGO, Feb. 16-17, 1942. Council on Medical Education and Hospitals, Sec., Dr. William D. Cutter, 535 North Dearborn Street, Chicago.

BOARDS OF MEDICAL EXAMINERS

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, January 17, page 249.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, Feb. 9-11. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral. Part II.* Atlantic City, June 6-7. Final date for filing application is March 7. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* St. Paul, April, in advance of the meeting of the American College of Physicians, and Philadelphia, June, in advance of the meeting of the American Medical Association. Applications should be on file 6 weeks in advance of the date of oral examination. *Written.* Oct. 19. Final date for filing application is Sept. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: New York, June. Sec., Dr. R. Glen Spurling, 404 Brown Bldg., Louisville.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral. Part II. Groups A and B* Atlantic City, May or June. Final date for filing application is March 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* Baltimore, June 6 and Philadelphia, June 8. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral and Written. All Groups.* Philadelphia, June, preceding the meeting of the American Medical Association. Final date for filing application is March 1. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Neb.

AMERICAN BOARD OF PATHOLOGY: St. Louis, March 30-31. Final date for filing application is Jan. 30. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, February 14. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* Boston, May 15-16. Final date for filing application is March 1. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: *Oral. All Groups.* Atlantic City, June 4. Final date for filing application is April 1. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave., S. W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written. Part I.* Various centers, March 2. Sec., Dr. J. Stewart Rodman, 225 S. Fifteenth St., Philadelphia.

New York Endorsement Report

The New York State Board of Medical Examiners reports 87 physicians licensed to practice medicine by endorsement from June 19 through September 9. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine		(1939)	N. B. M. Ex.
Georgetown University School of Medicine		(1934)	Maryland, (1938, 3), (1940, 5) N. B.M. Ex.
Loyola University School of Medicine		(1928)	California
Rush Medical College		(1939)	N. B. M. Ex.
University of Chicago, The School of Medicine		(1939)	N. B. M. Ex.
State University of Iowa College of Medicine		(1931)	Iowa
Tulane University of Louisiana School of Medicine		(1937)	Louisiana
Johns Hopkins University School of Medicine		(1929)	N. B. M. Ex.
Boston University School of Medicine		(1938)	N. B. M. Ex.
Harvard Medical School		(1935), (1939)	N. B. M. Ex.
Tufts College Medical School		(1940)	N. B. M. Ex.
St. Louis University School of Medicine		(1938)	N. B. M. Ex.
University of Nebraska College of Medicine		(1936)	Nebraska
Albany Medical College		(1937, 2), (1938), (1940, 7)	N. B. M. Ex.
Columbia University College of Physicians and Surgeons		(1938), (1939, 2)	N. B. M. Ex.
Cornell University Medical College		(1933), (1938), (1939, 2), (1940, 3)	N. B. M. Ex.
Long Island College of Medicine		(1939, 4), (1940)	N. B. M. Ex.
New York Medical College, Flower and Fifth Avenue Hospitals		(1939, 7), (1940, 4)	N. B. M. Ex.
New York University College of Medicine		(1938)	N. B. M. Ex.
University of Buffalo School of Medicine		(1939, 4), (1940, 5)	N. B. M. Ex.
Duke University School of Medicine		(1936), (1939, 2)	N. B. M. Ex.
Hahnemann Medical College and Hospital of Phila.		(1927)	Quebec
Jefferson Medical College of Philadelphia		(1886),* (1933)	Pennsylvania, (1936) Maryland, N. B. M. Ex.
University of Penna. School of Medicine		(1918), (1939)	N. B. M. Ex.
Womans Medical College of Pennsylvania		(1938)	N. B. M. Ex.
Medical College of Virginia		(1939)	N. B. M. Ex.
University of Virginia Department of Medicine		(1937)	Virginia
Marquette University School of Medicine		(1940)	N. B. M. Ex.
Medizinische Fakultät der Universität Wien		(1934)	N. B. M. Ex.
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1934)	N. B. M. Ex.
Universität Rostock Medizinische Fakultät		(1938)	N. B. M. Ex.
American University of Beirut School of Medicine		(1940, 2)	N. B. M. Ex.

* Licensed on endorsement of diploma.

California July Report

The Board of Medical Examiners of the State of California reports the written examination for medical licensure held at San Francisco, July 1-3, 1941. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. One hundred and fifty-four candidates were examined, 149 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
College of Medical Evangelists		(1940), (1941, 5)	6
Stanford University School of Medicine		(1939), (1941, 43)	44
University of California Medical School		(1941, 39)	39
University of Southern California Medical School		(1941, 10)	10
University of Colorado School of Medicine		(1940)	1
George Washington University School of Medicine		(1940, 3)	3
Georgetown University School of Medicine		(1940)	1
Loyola University School of Medicine		(1931), (1941)	2
Northwestern University Medical School		(1941, 2)	2
Rush Medical College		(1926), (1940)	2
University of Chicago, The School of Med.		(1939), (1940, 2)	3
University of Illinois College of Medicine		(1941, 2)	2
State University of Iowa College of Medicine		(1940)	1
University of Minnesota Medical School		(1941, 3)	3
St. Louis University School of Medicine		(1941)	1
Washington University School of Medicine		(1939), (1940)	2
Creighton University School of Medicine		(1940, 3), (1941, 2)	5
Columbia Univ. College of Physicians and Surgeons		(1940)	1
University of Oklahoma School of Medicine		(1940, 2)	2
University of Oregon Medical School		(1937), (1938), (1940, 4)	6
Temple University School of Medicine		(1939)	1
University of Pennsylvania School of Medicine		(1940)	1
University of Tennessee College of Medicine		(1940)	1
University of Toronto Faculty of Medicine		(1940, 2)	2
Laval University Faculty of Medicine		(1940)	1
McGill University Faculty of Medicine		(1940, 5)	5
Medizinische Fakultät der Universität Wien		(1932)	1
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1927)	1

School	FAILED	Year Grad.	Number Failed
Stanford University School of Medicine		(1941, 3)	3
Creighton University School of Medicine		(1940)	1
University of Nebraska College of Medicine		(1935)	1

Seventeen physicians were licensed to practice medicine by reciprocity and 8 physicians so licensed by endorsement of credentials of the National Board of Medical Examiners from August 5 through September 26. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1940)	Arkansas
University of Colorado School of Medicine		(1940)	Colorado
Loyola University School of Medicine		(1940)	Illinois
Northwestern University Medical School		(1937)	Ohio
State University of Iowa College of Medicine		(1936)	Iowa
University of Maryland School of Medicine and College of Physicians and Surgeons		(1932)	Maryland
University of Michigan Medical School		(1935)	Michigan
St. Louis University School of Medicine		(1939)	Missouri
University of Nebraska College of Medicine		(1923)	Nebraska
Columbia Univ. College of Physicians and Surgeons		(1929)	Arizona
Ohio State University College of Medicine		(1931)	Ohio
University of Cincinnati College of Medicine		(1934)	Minnesota
University of Oregon Medical School		(1932)	Oregon
University of Pittsburgh School of Medicine		(1930), (1932)	Penna.
Marquette University School of Medicine		(1932)	Michigan, (1938) Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.
College of Medical Evangelists		(1935), (1938), (1940)
George Washington University School of Medicine		(1938)
Harvard Medical School		(1929)
Columbia University College of Physicians and Surgeons		(1931)
University of Oregon Medical School		(1939)
University of Vermont College of Medicine		(1938)

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Abortion: Natureopath Convicted of Attempting to Procure Miscarriage.—The complainant, a married woman, was advised on June 3, 1940 by a physician that she was pregnant. About three weeks later she consulted the defendant, a licensed natureopath, concerning her condition, informing him that she had missed her last period and that she suspected pregnancy. The natureopath examined her. Subsequently she made six other visits to his office, being accompanied twice by her husband. On the suggestion of the natureopath, the husband purchased a catheter, which was given to the wife. Following the next visit to the natureopath the wife, apparently on the natureopath's suggestion, directed her husband to purchase another catheter. On at least one of the visits the natureopath inserted in her body one of the catheters, cutting off part of it, and told her to go home and go to bed. As a result of the defendant's treatment a miscarriage was produced. The natureopath was charged with committing "the crime of attempt to procure a miscarriage." At the trial the natureopath testified in detail as to what his examination of the complainant disclosed and the history which she gave him, including complaint of pain and spasm, and stated that on the information so obtained his diagnosis was that she was not pregnant but was suffering from metritis and stenosis of the womb with a consequent uterine congestion, which had interrupted her regular periods. He inserted the catheter, he testified, in the cervix to dilate it to relieve the pain and with no intention of performing an abortion. The natureopath was convicted and appealed to the Supreme Court of Errors of Connecticut.

The determinative question, said the Supreme Court of Errors, is whether or not the trial court was warranted on all the evidence in finding beyond a reasonable doubt that the natureopath had the guilty intent essential to conviction of the crime of attempting to procure a miscarriage. In urging that the trial court was not so warranted, the natureopath invoked the principle that, in determining whether evidence establishes guilt beyond a reasonable doubt, any conclusion reasonably to be drawn from the evidence consistent with the innocence of the accused must prevail. The defendant contended that the following facts, which appeared from the evidence, supported his claim as to the absence of a guilty intent on his part: entries under the date of the first visit of the complainant to his office of her name, of his diagnosis and of her payments, made in his desk book which he kept in his office with no attempt at concealment; the retention in his office likewise of the portion of the catheter not used; and his instructions to the complainant after treating her that in the event she became sick she should call a physician to take care of her, notwithstanding he knew that it would be the duty of the physician to report the situation if an abortion was involved. The natureopath also claimed that on the history given by the complainant to him and the physical condition revealed by his examination, the diagnosis which he made of stenosis of the cervix and excluding pregnancy was a possible one, that dilation of the cervix to relieve the pain is proper treatment of stenosis, and that the defendant, being but a natureopath, cannot be held to the same standards of skill and expert knowledge as a physician. Assuming, said the Supreme Court of Errors, that the purport of the evidence relied on should be construed to be as contended by the natureopath for the purpose of applying the principle in question, his claim cannot prevail because of other evidence in the record that the defendant did have guilty intent. The complainant made six visits to the natureopath's office and he was paid $50 in four payments during the course of the treatment. The natureopath himself testified that he knew what the result of inserting the catheter would be if the complainant was pregnant and he stated, apparently to the officer who had arrested him, that on the 27th and 28th of June the complainant "came again and I cleaned the womb and she did not come around. . . ." This evidence, fortified by the testimony of the physician who had made the original diagnosis of pregnancy that in his opinion the sole purpose of inserting a catheter in a woman's cervix is to produce an abortion, makes clear that the trial court could have properly concluded that the contentions of the natureopath went, at most, not further than to raise a possible, as distinguished from a reasonable, doubt as to his guilty intent. As such, it cannot avail the natureopath. The judgment of conviction was accordingly affirmed.—*State v. Santoro, 22 A. (2d) 793 (Conn., 1941).*

Malpractice: Qualifications of Expert Medical Witness; Admissibility of Photograph of Abdominal Scar.—The patient underwent an appendectomy in a private hospital conducted by the defendant physician. Bad results followed and it was subsequently necessary for the patient to submit to another operation for the repair of a ventral hernia, caused, contended the plaintiffs, by the defendant's negligence in making too long an incision for the appendectomy and in failing properly to suture the wound afterward. Accordingly the plaintiffs, the patient and her husband, each sued the defendant physician for malpractice. The two suits were consolidated for trial and, from judgments for the plaintiffs, the defendant appealed to the Supreme Court of Michigan.

The defendant contended that a photograph of the scar on the patient's abdomen had been improperly received in evidence. The evidence showed that the photograph was made after the trial was in progress and the testimony showed that the incision made by the defendant was lengthened by the second operation to repair the hernia, which was performed more than two years after the appendectomy. The plaintiffs claimed that the photograph was admissible because there was a question as to the length of the original incision, and that it was at least admissible to challenge on this point the credibility of the defendant's medical witnesses. The Supreme Court held that the admissibility in evidence of a photograph is largely within the discretion of the trial judge. In *Davis v. City of Adrian*, 147 Mich. 300, 110 N. W. 1084, the photograph of an ulcerated sore was held properly admitted when the jury had been instructed as to the consideration to be given to the accompanying testimony. In the present case, the trial judge stated, in the presence of the jury, that the picture was not admissible to show the length of the incision at the time the defendant operated and the jury was aware that the photograph had been taken after a second operation and during the trial of the case. The Supreme Court held that the rights of the defendant had been amply safeguarded by these statements of the trial court and concluded that the admission of the photograph was not an abuse of discretion.

The defendant relied mainly, however, on the contention that the plaintiffs had not produced any competent expert evidence of malpractice because the plaintiffs' only medical expert was not adequately qualified to express an opinion; that witness was permitted to testify as to the practice of surgery in Detroit and similar communities. The evidence showed that the witness had graduated from a medical school in Canada and was admitted to practice medicine and surgery in Michigan in 1902. Between 1902 and 1929 he practiced medicine, for periods of from a few months to a few years, in the upper peninsula of Michigan, in Chicago, in Perth, N. D., in British East Africa, in Alliance, Neb., in Mexico, in Blue Hill, Ainsworth, Gordon, Sidney and Potter, Neb., and other towns in Nebraska, Colorado and Louisiana. In 1929 he returned to Michigan and, after living in several communities, finally settled in Ferndale in 1932. This witness testified that he had never attended or witnessed any operation whatever in the city of Detroit or its vicinity, that he was acquainted with only one physician there, a physician with whom he once had a casual conversation, that "he never practiced, except as a consultant to some attorneys" and that he had not performed an operation for ten or twelve years. The question of competency, said the Supreme Court, is for the trial judge to determine, and he must decide within the limits of a fair discretion whether the experience of the witness had been such as to make his opinion of any value. Opinion evidence, the Court continued, may not be given by one who has no knowledge or experience. In ruling on the defendant's motion for a directed verdict, the trial judge seemed satisfied that the witness had no knowledge of the

medical standards in Detroit and similar communities and that this would disqualify him as an expert, but he nevertheless concluded that the issue concerned the weight rather than the admissibility of the testimony. The Supreme Court concluded otherwise, however, and held that the trial court erred in refusing either to strike the testimony of the witness or to instruct the jury that the opinion expressed by him was entitled to little or no weight. Accordingly the judgments for the plaintiffs were set aside and the cases were remanded to the trial court for a new trial.—*Perri v. Tassie (two cases), 292 N. W. 370 (Mich., 1940).*

Medical Practice Acts: Use of Preposterous Mechanical Device for the Alleged Treatment of Human Ailments as Gross Immorality Justifying Revocation of License to Practice.—The appellant, Crum, after attending for one year the College of Drugless Physicians in Indianapolis, which the Supreme Court of Indiana in the reported case characterized as a diploma mill, graduated therefrom with the degree of doctor of naturopathy, doctor of electrotherapeutics, doctor of chiropractic and doctor of herbal materia medica. He was licensed without examination in Indiana under the so-called grandfather clause of the Indiana Medical Practice Act to practice chiropractic, naturopathy and electrotherapeutics. He established an office in Indianapolis and from time to time used numerous kinds of mechanical devices in the practice of the several "professions" he was licensed to practice in Indiana. In 1936 he obtained a United States patent on a mechanical contrivance, which he dubbed an "etherator" or "co-etherator," for the diagnosis and treatment of various human ailments. This machine was a small wood box with a number of holes in the front over which various colors of thin paper were pasted. On the inside was an ordinary light bulb with a cord for making contact with electricity. The bulb could be moved about so that light would penetrate the various paper-covered holes. The box also contained a quantity of disconnected wire and a glass tube filled with ordinary hydrant water. There was a pedal and a dial on the outside of the box, neither of which had any connection with the interior. Crum, in using this machine, would have the gullible patient moisten a slip of paper with saliva and deposit it through a slot on the top of the box, or Crum would make similar use of the patient's photograph or a specimen of his handwriting. After this was done, Crum would rub the pedal with his thumb and talk to the machine, repeating the popular names of diseases and organs of the body. By this procedure Crum claimed to be able to treat, relieve and cure cancer, blindness, arthritis, nervous disorders, hemorrhoids, abscesses, kidney ailments, stomach disorders, leakage of the heart, skin ailments, ovarian trouble, varicose veins and tumors. He also claimed that by so using the machine he could lengthen or shorten a patient's legs, cause amputated fingers to grow back into place and fill cavities in teeth by restoring them to their natural condition. According to his claim it was not even necessary for patients to be present or visit his office but that with the machine he could broadcast treatments to them wherever they might be located. The machine, he also claimed, enabled him to "administer 'financial treatments' by means of which money could be put into the hands of his patients"; and that the machine "could fertilize fields to a distance of 70 miles," kill dandelions and "treat golf greens . . . so that clover would turn brown and dry up and give the grass a chance to grow."

The state board of medical registration and examination, acting on a complaint filed with it that the claims made by Crum in connection with the use of this machine constituted "gross immorality," which under the medical practice act of Indiana was a cause for the revocation of a license to practice medicine or healing, revoked his various licenses to practice in Indiana. Crum appealed to the circuit court, Marion County, which found him guilty as charged, and he then appealed to the Supreme Court of Indiana.

Crum first contended that the allegations in the complaint filed with the state board of medical registration and examination do not amount to a charge of gross immorality. He reasoned that since he was licensed to practice chiropractic, naturopathy and electrotherapy, his right to do the things charged in the complaint was "recognized and legalized." It is not necessary, said the Supreme Court, to define what properly constitutes the practice of chiropractic, naturopathy or electrotherapy or to enter into any extended discussion as to what conduct is forbidden by the term "gross immorality" as used in the Indiana medical practice act. It is enough to say that this Court will not judicially presume that the Indiana legislature intended to authorize a course of conduct so reprehensible and revolting as to shock the sensibilities of reasonable men. On the contrary, it must be assumed that in providing for licenses to practice possessed by Crum, the legislature intended that the methods employed in practicing under those licenses should bear some rational relationship to the alleviation of human ills. In the opinion of the Court, the allegations of the complaint sufficiently charged gross immorality.

Crum next contended that, since a section of the Indiana medical practice act forbids the board to discriminate against any school or system of medicine, to brand his practices as described in the complaint as immoral would require that his conduct be measured by the standards exacted by other schools of medicine and that this in turn would call for mere expressions of opinion rather than facts as to the curative value of his so-called treatments. The issues, he argued, raised by the charges are therefore beyond the inquisitorial purview of the board and without the reviewing jurisdiction of the courts. The complaint filed with the board, said the Supreme Court, discloses no such fundamental controversy between the concepts of hostile schools of the medical and healing sciences. The charge was, in effect, that Crum used a device of no possible therapeutic value under any recognized system of treatment and that he knowingly made false and fraudulent claims with respect to it for his own profit and to the injury of others. No licentiate of this state may rightfully claim the privilege so to practice. The fact that in the enforcement of the law the administrative agency and the courts may sometimes find it proper or convenient to consider the opinions of skilled and competent experts in determining the virtue of such practices does no violence to due process or vested rights. The complaint was sufficient.

The very mention of the extravagant claims made by Crum, continued the Court, is sufficient to suggest their untruthfulness and brand them as designedly fraudulent. His case is not helped by the fact that he produced numerous witnesses at the trial who voluntarily testified as to "miraculous" cures that had been brought about by the use of his machine. "Hope springs eternal in the human breast" and it is not uncommon for persons who are afflicted with dreadful diseases to be misled and beguiled into believing that they have been helped by quacks and charlatans. It is reasonable to suppose that by the enactment of the medical practice act it was the deliberate purpose and intention of the legislature to protect such unfortunate people from their own credulity. The evidence, in the opinion of the Supreme Court, was sufficient to justify the trial court in finding that Crum was guilty of gross immorality and that he was utterly unfit to be licensed by the state to treat human ailments. The action of the board in revoking his license was in effect affirmed. —*Crum v. State Board of Medical Registration and Examination, 37 N. E. (2d) 65 (Ind., 1941).*

Society Proceedings

COMING MEETINGS

Annual Congress on Medical Education and Licensure, Chicago, Feb. 16-17. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.

American Orthopsychiatric Association, Detroit, Feb. 19-21. Dr. Norvelle C. LaMar, 149 East 73d St., New York, Secretary.

Central Surgical Association, Chicago, Feb. 27-28. Dr. George M. Curtis, Ohio State University, Columbus, Ohio, Secretary.

Mid-South Post Graduate Medical Assembly, Memphis, Tenn., Feb. 10-13. Dr. Arthur F. Cooper, 165 Madison Ave., Memphis, Tenn., Secretary.

Pacific Coast Surgical Association, San Francisco and Del Monte, Calif., Feb. 17-20. Dr. F. L. Reichert, Stanford University Hospital, San Francisco, Secretary.

Society of Surgeons of New Jersey, Trenton, Jan. 28. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1931 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

68:851-1042 (Nov.) 1941

*Significance of Bacteremia Caused by Staphylococcus Aureus: Study of 122 Cases and Review of Literature Concerned with Experimental Infection in Animals. D. Skinner and C. S. Keefer, Boston.—p. 851.

Metabolism in Organic Hyperinsulinism: I. Quantitative Studies of Variations in Rate of Combustion of Carbohydrate Produced by Alterations in Diet. J. W. Conn and Elizabeth Stern Conn, Ann Arbor, Mich.—p. 876.

Blood Sugar in Case of Complete Hypophysectomy. J. F. Hart and M. Magiday, New York.—p. 893.

*Biologic False Positive Serologic Reactions in Tests for Syphilis: I. Occurrence in Normal Persons. C. F. Mohr, J. E. Moore and H. Eagle, Baltimore.—p. 898.

Prognostic Value of Various Clinical and Electrocardiographic Features of Acute Myocardial Infarction: I. Immediate Prognosis. F. F. Rosenbaum, Ann Arbor, Mich., and S. A. Levine, Boston.—p. 913.

*Importance of Dextrose Tolerance Test in Diagnosis of Marginal Malnutrition. G. W. Robinson Jr., P. Shelton and F. V. Smith Jr., Kansas City, Mo.—p. 945.

Acute, Massive Hemoglobinuria of Obscure Cause, with Jaundice and Anemia: Report of Case with Clinical and Hematologic Studies and Measurements of Blood Pigment Metabolism. M. D. Altschule and D. R. Gilligan, Boston.—p. 957.

Diseases of Adrenal Glands: I. Addison's Disease. E. J. Kepler and D. M. Willson, Rochester, Minn.—p. 979.

Id.: II. Tumors of Adrenal Cortex, Diseases of Adrenal Medulla and Allied Disturbances. E. J. Kepler and F. R. Keating, Rochester, Minn.—p. 1010.

Bacteremia Caused by Staphylococcus Aureus.—Skinner and Keefer studied 122 cases of bacteremia caused by Staphylococcus aureus. Only 22 patients recovered. Several conditions are necessary for recovery. The blood stream must be cleared of bacteria and the infection localized and drained or allowed to resolve spontaneously. However, some patients die from the effects of infection even though their blood streams are cleared of organisms, and in them the soluble products (toxins) of the staphylococci are probably important. Presumably, the toxins in the patients who recover are neutralized and the organisms destroyed. Burnet showed experimentally that hemolytic, dermatonecrotic and lethal toxins were formed in vivo and that immunization did not protect animals against experimental infection. The evidence, though incomplete, indicates that man recovers only if the blood is cleared of organisms, the infection localized and the toxic effects of the infection neutralized.

Tests for Syphilis.—Mohr and his colleagues present cases which show that apparently normal, nonsyphilitic persons may temporarily or permanently possess a reagin or a reagin-like substance in the blood which reacts positively in standard serodiagnostic tests for syphilis. The biologically false positive reactions of the persons concerned were verified in different laboratories and by other methods than the supersensitive flocculation tests. Despite these false reactions, the authors suggest that it may be that the antibody present in syphilitic serum is strictly specific and that normal serum contains other substances with qualitatively similar effects on the lipoidal suspensions used as an "antigen." Thus, a normal serum may be capable of causing the aggregation of these lipoidal suspensions to cause clumping indistinguishable from that caused by syphilitic serum, even though the mechanism of the aggregation is dissimilar.

Marginal Malnutrition.—Robinson and his associates selected 5 patients whose condition was diagnosed as diabetes mellitus by the criteria of Exton and Rose; Gould, Altshuler and Mellen, and Matthews, Magath, Berkson and Gage. The authors attempted to show that although the 5 patients had definite diabetic curves the curves were probably indicative of malnutrition. With proper treatment the curves have returned to normal and the patients have a normal carbohydrate metabolism without treatment. The patients had various types of mental disorders. Such patients, the authors say, are excellent material for studies in malnutrition, especially of the marginal type, because their habits and symptoms lead to this state, and these physiologic abnormalities will develop in any malnourished person. They believe that the dextrose tolerance test should be of value to the general practitioner as both in psychiatric and in general practice there are many patients with a history of easy fatigue and other symptoms of malnutrition in whose treatment the determination of the state of nutrition is an important factor. It was for these patients that the authors found the test and its interpretation of great value. When they first began to determine the dextrose tolerance curve routinely, they observed that the most disturbed curve occurred in patients with the most profound malnutrition. No other common denominator was demonstrable. This interpretation was confirmed by the return of the curve to normal after malnutrition was corrected. The psychosis had no effect on the curve. Some patients had a psychiatric recovery without the metabolism returning to normal, while in others the curve returned to normal while the psychosis was still as active as it had been at the time of admission. The authors consider dextrose tolerance a satisfactory test for the state of nutrition as well as for diabetes mellitus, and they believe that a diagnosis of diabetes mellitus should not be made for any patient with an abnormal dextrose tolerance curve until a full diet has been given for an appropriate period and the dextrose tolerance curve has not returned to normal.

Endocrinology, Springfield, Ill.

29:655-854 (Nov.) 1941. **Partial Index**

Relation of Thyroid and Pituitary Glands to Iodine Metabolism. A. Chapman, Rochester, Minn.—p. 680.

Extrathyroidal Iodine Metabolism. A. Chapman, Rochester, Minn.—p. 686.

Epiphysial Growth: Normal Sequence of Events at Epiphysial Plate. T. H. Ingalls, Boston.—p. 710.

Effect of Adrenalectomy on Carbohydrate Metabolism. G. Evans, Minneapolis.—p. 731.

Effect of Testosterone Propionate on Various Responsive Organs of Immature Rats. W. Freeman and Rose Small, Worcester, Mass.—p. 758.

Lesions of Bladder and of Prostate of Mice Receiving Pellets of Crystalline Estrone. H. Lisco, Boston, and G. R. Biskind, Baltimore.—p. 772.

Conditions Influencing Course of Steroid Hormone Anesthesia. Helen Winter, Montreal, Canada.—p. 790.

Serum Cholesterol in Rhesus Monkey. C. G. Hartman and W. Fleischmann, Baltimore.—p. 793.

Studies on Stilbestrol: I. Some Effects of Continuous Injections of Stilbestrol in Adult Female Rat. J. A. Morrell and G. W. Hart, New Brunswick, N. J.—p. 796.

Id.: II. Effect of Massive Doses on Normal Immature Female Rats. J. A. Morrell and G. W. Hart, New Brunswick, N. J.—p. 809.

*Effect of Large Doses of Estrogens on Blood Picture of Dogs. R. Tyslowitz, Boston, and Elisabeth Dingemanse, Amsterdam, The Netherlands.—p. 817.

Diabetogenic Effect of Stilbestrol in Force Fed Normal and Partially Depancreatized Rats. D. J. Ingle, Philadelphia.—p. 838.

Insulin Concentration in Blood of Normal and Pancreatectomized Dogs. E. Gellhorn, J. Feldman and A. Allen, Chicago.—p. 849.

Estrogens and Anemia.—Tyslowitz and Dingemanse state that anemia develops in healthy dogs after treatment with large doses of estrogenic substances (theelin, estradiol benzoate and diethylstilbestrol). Androgenic substances (testosterone or its propionate) do not produce anemia even after months of treatment. The most striking effect was a fall in the erythrocytes, reticulocytes and thrombocytes. Granulocytopenia often occurred after an initial leukocytosis with a shift to the left. The anemia was hyperchromic at first and later it became normochromic or hypochromic. The total quantity of estrogen tolerated depended on the daily dose; a dose of 5 mg. daily for sixteen to forty days was fatal for a dog of 10 Kg. (22 pounds), while the administration of 1 mg. daily for as long as nine months appeared harmless. The simultaneous administration of estrogens and liver extracts did not prevent the anemia. The course of the anemia, the differential leukocyte count and the frequent occurrence of granulocytopenia point to a primary injury to the bone marrow.

Indiana State Medical Assn. Journal, Indianapolis

34:581-658 (Nov.) 1941

Aviation Medicine. L. H. Bauer, Hempstead, N. Y.—p. 582.
Endocrine Treatment in General Practice. C. Mazer, Philadelphia.—p. 584.
Management of the Juvenile Diabetic. M. R. Shafer, Indianapolis. —p. 588.
Management of the Adult Diabetic. R. H. Beeson, Muncie.—p. 591.
Management of Diabetes in the Senile. B. M. Edlavitch, Fort Wayne. —p. 593.
Essentials in Fracture Treatment. J. J. Moorhead, New York.—p. 595.
Sulfadiazine: New Chemotherapeutic Agent. H. M. Powell and K. K. Chen, Indianapolis.—p. 602.

Iowa State Medical Society Journal, Des Moines

31:511-562 (Nov.) 1941

The Medical Citizen of 1941. N. B. Van Etten, New York.—p. 511.
Sinus Disease: Some Practical Considerations. S. Salinger, Chicago. —p. 514.
Industrial Ophthalmology. G. C. Struble, Ottumwa.—p. 521.
Treatment of Pneumonia. B. F. Wolverton, Cedar Rapids.—p. 526.
Metrazol Convulsive Therapy of Mental Disease. I. Zifferstein, Mount Pleasant.—p. 531.
Modern Treatment by X-Ray. Aileen Mathiasen, Des Moines.—p. 533.
Acute Pancreatic Necrosis: Unsolved Acute Abdominal Disease. W. L. Downing, LaMars.—p. 538.

Journal of Clinical Investigation, New York

20:607-800 (Nov.) 1941

Cause of Death in Experimental Anuria. H. E. Hoff, P. K. Smith and A. W. Winkler, New Haven, Conn.—p. 607.
Thiamine Content of Human Blood and Urine as Determined by Fermentation Method. R. Goodhart, with technical assistance of Theodora Nitzberg, New York.—p. 625.
Note on Interpretation of Clearance Methods in Diseased Kidney. H. W. Smith, New York.—p. 631.
Effective Renal Blood Flow in Subjects with Essential Hypertension. W. Goldring, H. Chasis, H. A. Ranges and H. W. Smith, New York. —p. 637.
*Effective Renal Blood Flow in Separate Kidneys of Subjects with Essential Hypertension. H. Chasis and J. Redish, New York.—p. 655.
*Epidemic of Influenza: Results of Prophylactic Inoculation of Complex Influenza A Distemper Vaccine. J. W. Brown, M. D. Eaton, G. Meiklejohn, J. B. Lagen and W. J. Kerr, Berkeley, Calif.—p. 663.
*Circulatory Failure in Acute Infections. R. V. Ebert and E. A. Stead Jr., Boston.—p. 671.
Studies on Intrapulmonary Mixture of Gases: IV. Significance of Pulmonary Emptying Rate and Simplified Open Circuit Measurement of Residual Air. A. Cournand, Eleanor DeF. Baldwin, R. C. Darling and D. W. Richards Jr., New York.—p. 681.
Comparison Between Dehydration from Salt Loss and from Water Deprivation. J. W. Nadal, S. Pedersen and W. G. Maddock, Ann Arbor, Mich.—p. 691.
Calculation of Venous Arterial Shunt in Congenital Heart Disease. M. Prinzmetal, Los Angeles.—p. 705.
Plasma Levels of Vitamin A After Ingestion of Standard Doses: Studies in Normal Subjects and Patients with Cirrhosis of Liver. Elaine P. Ralli, E. Bauman and L. B. Roberts, New York.—p. 709.
Hemodynamic Effects of Angiotonin in Normal Man. S. E. Bradley and Barbara Parker, New York.—p. 715.
Nature of Arterial Hypertension Produced in Normal Subjects by Administration of Angiotonin. R. W. Wilkins and C. N. Duncan, Boston.—p. 721.
Some Properties of Human Fetal and Maternal Blood. R. C. Darling, C. A. Smith, E. Asmussen and F. M. Coben, Boston.—p. 739.
Metabolic Studies in Patients with Cancer of Gastrointestinal Tract: I. Plasma Vitamin A Levels in Patients with Malignant Neoplastic Disease, Particularly of Gastrointestinal Tract. J. C. Abels, Alice T. Gorham, G. T. Pack and C. P. Rhoads, New York.—p. 749.
Fractionation of Serum Proteins in Hyperproteinemia, with Special Reference to Multiple Myeloma. A. B. Gutman, D. H. Moore, Ethel Benedict Gutman, Virginia McClellan and E. A. Kabat, New York.—p. 765.

Renal Blood Flow in Hypertension.—Chasis and Redish used the clearance method to measure the renal blood flow of the separate kidneys of 21 patients with essential hypertension. The results indicate that the destruction of tubular tissue progresses equally on the two sides in hypertensive disease and that the functional disturbance in the blood flow and the filtration rate is shared equally by the two kidneys. There was no indication of unilateral renal ischemia. The study refutes the widely accepted premise that unilateral renal disease in man is the primary cause of arterial hypertension.

Prophylactic Influenza Vaccination.—Brown and his collaborators present the data of an epidemic of influenza A which occurred in San Francisco in November and December 1940 and January 1941. They present also the results of prophylactic inoculation against the disease influenza A. Antibody studies indicated that influenza A was the causative agent in 75 per cent of the many patients so studied. Two hundred and seventy-three of 1,213 persons were given subcutaneous inoculations of the complex influenza A vaccine of Horsfall and Lennette. The group studied consists of the population of the University of California Medical Center in San Francisco. The injections were given on November 26 and 28 and December 3. The epidemic had been in progress a few days before the first inoculations were carried out. There were no significant reactions to the injections. A febrile disease resembling influenza occurred in 235 of the 940 control subjects, an incidence of 25 per cent, as compared to 36 among the 273 inoculated persons, an incidence of 13 per cent. The incidence of influenza was much higher (43 per cent) in the hospital control group (nurses, resident physicians and technicians) than in the general control group, either because of better observation or because of greater exposure. Only cases of established influenza A were considered. Of the inoculated persons who subsequently had influenza, only 4 acquired it more than ten days (eleven, twelve, twenty-three and thirty-nine) after inoculation. The occurrence in 2 of these shows clearly that vaccination did not afford certain protection. The incidence of influenza A in the epidemic reached its peak during the ten days after vaccination, and it subsided rapidly during the time when vaccination might be expected to become effective. However, the difference in incidence in the two groups is striking and may be due to a protective effect of vaccination which began sooner after inoculation than is usually considered likely.

Circulatory Failure in Infections.—Ebert and Stead studied the effect of the following procedures on the circulatory failure of 8 patients with acute infections (1 with lobar pneumonia, 4 with lobar pneumonia and bacteremia, 1 with streptococcic septicemia, 1 with staphylococcic septicemia and 1 with bronchopneumonia): elevation of the foot of the bed, transfusion of whole blood or plasma and infusion of a 10 per cent solution of dextrose in saline. None of these measures produced any improvement in the circulation. Improvement in the circulation occurred only after the infection had been controlled. Data suggest that in circulatory failure in acute infections the entire cardiovascular system is apparently damaged by the infection.

Journal of Nervous and Mental Disease, New York

94:529-668 (Nov.) 1941

Myelodysplasia: Two Cases. A. Austregesilo and A. R. de Mello, Rio de Janeiro, Brazil.—p. 529.
Case of Puerperal Psychosis Recovering from Four Attacks. H. G. Hadley, Washington, D. C.—p. 540.
Study of Migraine. C. T. Gayley, Lansdowne, Pa.—p. 542.
Complications and Unusual Phenomena Arising in Course of Metrazol Treatment of Psychoses—Their Classification and Management. J. Epstein, New York.—p. 562.
Angioma Simplex of Pons. K. T. Neubuerger and W. L. Silcott, Denver. —p. 586.
Recent Progress in Psychosomatic Medicine. J. Nodkin, Poughkeepsie, N. Y.—p. 593.

Journal of Neurophysiology, Springfield, Ill.

4:507-582 (Nov.) 1941

Alleged Synchronization of Proprioceptive Impulses Within Spinal Ganglions. E. T. von Brücke and Marie Early, Boston.—p. 507.
Hyperactivity in Monkeys Following Lesions of Frontal Lobes. Margaret A. Kennard, Susan Spencer and G. Fountain Jr., New Haven, Conn.—p. 512.
Spinal Mechanism of Pyramidal System in Cats. D. P. C. Lloyd, New York.—p. 525.
Crossed Inhibition of Flexor Reflex in Spinal Mammal. G. P. McCouch, J. Hughes and Winifred B. Stewart, Philadelphia.—p. 547.
Cortical Origin and Distribution of Corpus Callosum and Anterior Commissure in Monkey (Macaca Mulatta). W. S. McCulloch and H. W. Garol, New Haven, Conn.—p. 555.
Cortical Origin and Distribution of Corpus Callosum and Anterior Commissure in Chimpanzee (Pan Satyrus). P. Bailey, H. W. Garol and W. S. McCulloch, New Haven, Conn.—p. 564.
Potassium and Water Changes in Excised Nerve on Stimulation. V. Arnett, Ithaca, N. Y., and W. S. Wilde, New Orleans.—p. 572.

Maine Medical Association Journal, Portland

32:251-274 (Nov.) 1941

Some Practical Aspects of Mental Hygiene. H. B. Elkind, Boston.—p. 251.
The Cesarean Section Habit. K. A. Laughlin, Portland.—p. 260.
A Community Hospital Prepares for Emergency. O. G. Pratt, Salem, Mass.—p. 262.

New Orleans Medical and Surgical Journal

94:207-260 (Nov.) 1941

Therapeutic Problems in Water Balance from Viewpoint of the Surgeon. U. Maes and H. A. Davis, New Orleans.—p. 207.
Etiology of Influenza: Review. G. W. McCoy, New Orleans.—p. 212.
Otorhinolaryngologic Aspects of Influenza. H. L. Kearney, New Orleans.—p. 216.
Treatment of Influenza. O. W. Bethea and R. G. Greenlee, New Orleans.—p. 217.
Management of Facial Injuries. N. Owens and R. W. Vincent, New Orleans.—p. 221.
Therapy of Cerebrospinal Fever: Comparative Analysis of Therapeutic Results in Ninety-Seven Cases From Charity Hospital of Louisiana at New Orleans. C. J. Tripoli and R. E. Selser, New Orleans.—p. 232.
Electro Shock Therapy. W. J. Otis, New Orleans.—p. 239.
Primary Carcinoma of Liver: Case Report. S. H. Calvin Jr., New Orleans.—p. 242.
Diagnosis and Treatment of Disorders of Sebaceous Glands (Seborrheic Dermatitis and Acne Vulgaris). B. Kennedy, New Orleans.—p. 243.

Radiology, Syracuse, N. Y.

37:521-658 (Nov.) 1941

Criteria of Malignancy. A. Graham, Cleveland.—p. 521.
Tumors of Adrenal and Use of Air Insufflation in Their Diagnosis. G. F. Cahill, New York.—p. 533.
Use of Intravesical Low Voltage Contact Roentgen Irradiation in Cancer of Bladder. L. S. Goin and E. F. Hoffman, Los Angeles.—p. 545.
Further Experiences with Chaoul Therapy. E. P. Pendergrass and P. J. Hodes, Philadelphia.—p. 550.
Roentgen Therapy of 100 Consecutive Tumors of Brain or Spinal Cord. F. B. Mandeville, D. A. Russell and Maude S. Farley, Richmond, Va.—p. 560.
Malignant Disease of Rectum and Rectosigmoid Treated with Radium. H. H. Bowing and R. E. Fricke, Rochester, Minn.—p. 569.
Combined Irradiation and Surgery in Treatment of Carcinoma of Pelvic Colon. H. P. Doub, Jean P. Pratt and H. C. Jones, Detroit.—p. 575.
Achondroplasia Fetalis (Chondrodystrophia Fetalis). E. L. Jenkinson and R. E. Kinzer, Chicago.—p. 581.
**"Reversible" and "Irreversible" Massive Pulmonary Atelectasis: Radiologic Study. C. P. Jacinto and M. Lahoz, Manila, Philippine Islands.—p. 588.
Recurrent Postoperative Atelectasis. G. L. Apfelbach and J. B. Carter, Chicago.—p. 598.
*Spontaneous Pneumoperitoneum: Roentgenologic Sign Found in Supine Position. L. G. Rigler, Minneapolis.—p. 604.
Influence of Roentgen Irradiation of Normal Lung on Prevention of Subsequent Metastatic Tumor Growth: Preliminary Report. R. P. Barden, Philadelphia.—p. 608.
Simplified Method of Preserving Radiographs and Allied Records on Miniature Film. S. S. Sanderson, Binghamton, N. Y.—p. 616.
Reproduction of Roentgenograms on Films of Millimetric Dimensions and Suggested Potentials of Utility in This Procedure. C. G. Sutherland, Rochester, Minn.—p. 622.
Protective Screening of Radium During Transportation. L. F. Curtiss, Washington, D. C.—p. 628.

"Reversible" and "Irreversible" Atelectasis.—Jacinto and Lahoz state that serial teleroentgenograms and anteroposterior or lateral tomographic exposures of the chest made it possible to diagnose atelectatic pulmonary consolidation in 4 living subjects. The tomographic exposures were especially useful in differentiating between pleural and pulmonary opacities, which at times appeared the same in the conventional roentgenogram of the chest. The atelectatic pulmonary consolidation in 3 patients was tuberculous, and in 1 it was nontuberculous. In the last patient the presence of the bronchial obstruction was verified by a bronchogram made with the aid of iodized oil and by bronchoscopic examination. Massive pulmonary atelectasis is classified as "reversible" and "irreversible," depending on whether pulmonary reaeration is or is not possible. Massive pulmonary atelectasis in Filipinos, the author says, is not as rare as is currently believed.

Spontaneous Pneumoperitoneum.—Rigler describes a new roentgen sign of pneumoperitoneum. It is manifested in the ordinary scout roentgenogram of the abdomen made with the patient in the supine position. Chiefly the sign consists in the ability to visualize, on the film, the outer as well as the inner wall of the intestine. It appears to occur only when relatively large quantities of gas and some fluid have entered the peritoneal cavity. The sign is not a rare one, as it was present in 5 cases of acute perforation of the colon in which reasonably satisfactory roentgenograms were obtained with the patient in the supine position. Careful examination of the routine roentgenogram may reveal the supervention of perforation and peritonitis, and thus the first evidence that more radical treatment is required will be had.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:497-532 (Oct. 11) 1941

*Treatment of Bacillary (Flexner) Dysentery with Sulfanilylguanidine. D. E. W. Anderson and R. Cruickshank.—p. 497.
*Tellurite-Iron-Rosolic Acid Medium Selective for Bacillus Dysenteriae (Flexner). W. J. Wilson and E. M. M. Blair.—p. 501.
*A New Sulfonamide (Sulfonamide E. O. S.): Its Pharmacology, Chemotherapy and Curative Value in Meningococcic Meningitis. N. Mutch.—p. 503.
*Size and Visibility of Filtrable or Virus Bodies. A. C. Coles.—p. 507.
Clinical Manifestations of Tetryl and Trinitrotoluene. J. Hilton and C. N. Swanston.—p. 509.

Sulfanilylguanidine for Flexner Dysentery.—Anderson and Cruickshank assessed the value of sulfanilylguanidine for Flexner dysentery by giving the drug to alternate patients in a hospital for patients with mental disorders in which a severe epidemic began in December 1940 and continued, with intermissions, until June 1941. There were 130 adult patients, but as only those who had blood and mucus in their stools or for whom there was bacteriologic proof that they were suffering from Flexner dysentery were accepted for analysis the number was reduced to 96, of whom 41 were treated with the drug and 55 were untreated controls. The drug, in powder form, was suspended in water or milk. The amount was 9 Gm., given in three doses for two days and followed by the giving of 4 Gm. a day in two doses. If the diarrhea was not controlled within four days the maintenance dose of 4 Gm. a day was continued for one week. A liberal intake of fluid was insisted on during the period of chemotherapy. In a typical case of severe dysentery the patient's condition improved in twenty-four hours after his receiving the drug, and by the third day the patient was feeling much better, the toxic symptoms had disappeared and the appetite had returned. Bowel movements became much less frequent within two days, though blood and mucus often persisted for three to four days. Convalescence was much shorter than in the untreated patient. Treatment with the drug in the acute stage of the infection apparently prevented the convalescent carrier state, which was present in about half of the untreated patients. The use of desoxycholate-citrate agar as a culture medium resulted in the isolation of Bacterium dysenteriae (Flexner) from a high proportion of typical and atypical infections. Its superiority over MacConkey's medium was most noticeable in that the pathogen was isolated during convalescence. The combination of sulfanilylguanidine and the culture medium, which readily detects mild infections and convalescent carriers, may be instrumental in eliminating dysentery from hospitals for persons with mental disease. The drug could be used, particularly in wartime, for the control of dysentery.

A Selective Medium for Bacterium Dysenteriae.—Wilson and Blair found that lactose nutrient agar containing, per hundred cubic centimeters, 0.5 cc. of a 1 per cent alcoholic solution of rosolic acid, 0.5 cc. of a 1 per cent solution of potassium tellurite and 1 cc. of a 4 per cent solution of iron alum provided a medium on which Flexner's Bact. dysenteriae grew profusely, whereas the growth of most strains of Escherichia coli and Bacillus lactis aerogenes was inhibited. The growth of Salmonella food poisoning organisms, typhoid and paratyphoid bacilli, Sonne's bacillus and cholera vibrios was suppressed.

A New Sulfanilamide Derivative.—Mutch used sulfonamide ethyl-alpha-sulfonate for the treatment of 130 patients with various acute infections. The new drug is freely soluble in water, it is almost tasteless and infants and patients in coma or those who are vomiting or have diarrhea can be easily treated by giving the drug by mouth, nasal tube, rectal tube or intravenous drip. General malaise was slight, and pallor, nausea and vomiting never occurred. Cyanosis was common, but it never caused distress or required the discontinuance of therapy. Routine blood counts were made but granulocytopenia or simple leukopenia was not encountered. Minor degrees of anemia were observed, but not with greater frequency or

severity than is usual after a severe infective illness. A simple erythematous rash developed in a child after a week of treatment. The rash might possibly have been prevented by a freer use of alkalis. In general there were no serious complications, and the usual symptoms which distress without endangering the patient when sulfapyridine is used were absent. As the expected recovery rate in the disorders treated is reasonably high even with nonspecific therapy a datum line from which to judge the success of the new drug is difficult, and therefore the author stresses the results obtained in 34 cases of acute epidemic cerebrospinal meningitis. Three of the patients died, but there were no deaths among those who were seen during the first week of illness and who remained free of serious secondary infections of the viscera. The temperature of some patients was normal after thirty-six hours of treatment. The recovery of some patients was complete in as little as two and a half weeks.

Size and Visibility of Filtrable Bodies.—Coles believes that all the filtrable virus bodies, including that of foot and mouth disease and infantile paralysis, are easily within the range of the ordinary microscope when it is used correctly. Ultramicroscopic methods have so far added little to the knowledge of viruses. He has used Nelson's method of measuring by extinction for many years. He has found a Leitz 1/10a fluorite objective fitted with an iris diaphragm graduated in numerical apertures, immediately behind the back lens, remarkably accurate. Briefly, the method is to bring the object just to the point of invisibility by reducing the numerical aperture, and then the correction for antipoint will be the measure of the object. The minimal visibility of any objective can be determined by the following calculation: For white light of 45,300 waves per inch (2.4 cm.) 1,041 is divided by the numerical aperture; for green light of 50,000 waves per inch 0.942 is divided by the numerical aperture of the objective.

Mitt. a. d. med. Akad. zu Kioto, Kyoto

32:451-866 (June) 1941. **Partial Index**

*Pathologic Changes in Bones Due to Peanut Feeding. I. Kohno.—p. 748.

Osteopathy Due to Peanut Feeding.—Kohno fed a litter of 8 rabbits and 2 control rabbits with raw ground peanuts daily in amounts varying from 1 to 5 Gm. per kilogram of body weight, the experimental feeding starting as soon as the young animals were weaned. Six animals died of gastrointestinal disturbances at intervals ranging from twenty-three to fifty-three days, only 3 animals surviving sixty-two days, at which time they were killed. Histologic examination of the bones in these animals revealed severe hyperplasia of the intermediary cartilage zones, abnormal prolongation of the cartilage matrix and diminution of the total length of the bones. The cortex of the tubular bones was greatly reduced in thickness and of a spongy consistency, with the external and internal periosteal tissues greatly thickened. The bone marrow generally showed fibrotic changes which produced a shortening of the bones corresponding with the degree of the osteopathy. These changes of bone resembled in part those seen in alimentary osteopathy produced by alkalosis; but they more closely resembled the changes of alimentary osteopathy encountered in acidosis. These observations led the authors to conclude that together these changes represent a new distinct osteopathy due to peanut feeding.

Geneeskundig Tijdschr. v. Nederl.-Indië, Batavia

81:1629-1676 (Aug. 5) 1941

*Alarming Frequency of Venereal Diseases and Necessity of Social Hygienic Measures to Reduce it in Netherland East Indies. R. D. G. P. Simons.—p. 1630.
*Skin Disorders Caused by Sunlight. P. H. J. Lampe.—p. 1639.
Lead Encephalopathy in a Chinese Infant. Loe Ping Kian.—p. 1667.
Simple Method for Blood Transfusion. H. Oosterveen.—p. 1673.

Venereal Diseases in East Indies.—Simons estimates that in Java (and Madoera) from 10 to 15 per cent of the population of the age level between 18 and 50 are infected with venereal disease. He thinks that the high frequency is chiefly due to the fact that 50 per cent of the patients with venereal disease undergo no treatment at all. The country is overrun with quackery. "Wonder doctors" publish the slogan that "native ailments" must be treated with native herbs. Only a few hospitals perform serologic examinations during pregnancy. There is no follow-up study and no partner treatment. Brothels flourish in the cities. Investigation of the houses of prostitution only makes the prostitutes flee to their villages. Lack of social hygiene methods and lack of proper instruction have the effect that 75 per cent of the patients who submit to first treatment do not continue until complete recovery.

Skin Disorders Caused by Sunlight.—Lampe applies the term phototrauma to lesions produced by excessive irradiation on a skin of normal sensitivity. Examples of phototrauma are sun erythema, sunburn, ephelides and reticular pigmentations. It is difficult to differentiate strictly between a physiologic and a pathologic sensitivity of the skin, but if the threshold value is greatly reduced the sensitivity is usually regarded as pathologic. This reduction in the threshold may be due to the photosensitizing effect of substances which under ordinary conditions are not present in the same quantities or do not behave in the same manner. The author subdivides the photosensitivity dermatoses into photoallergic skin reactions and photodynamic manifestations. The photoallergic reactions are best known in the temperate regions, where in some persons the allergy recurs every year with the onset of the sunny season. The terms urticaria solaris, eczema solare and prurigo aestivalis indicate the polymorphic and seasonal character. In the tropics these lesions are rare, because persons with a predisposition to them are unsuited to the tropics. Under incidental photoallergic reactions the author mentions those that are not connected with a previous exposure to light; that is, the diagnosis of allergy to light is based chiefly on the fact that the allergic manifestations occur on the uncovered skin. In this connection the author mentions allergic manifestation in connection with hair dyeing and alimentary photoallergy. In the photodynamic manifestations the photosensitizing substance may be naturally present, as is porphyrin. On exposure of the sensitive person to sunlight, hydroa vacciniforme and hematoporphyrinuria develop. Another disease entity ascribed to a congenital photodynamic hypersensitivity is xeroderma pigmentosum. The photosensitizing substance can also enter the organism artificially, for instance in the form of a medicine, or it may come in external contact with the skin. In this connection the author mentions the photosensitizing effect of the eau de cologne of certain perfumes, benzine, brandy, spirit and sea water. The local forms of light dermatitis are characterized by a temporary erythema and a subsequent persistent pigmentation. The form of the light effect usually indicates previous contact with a sensitizing substance in a fluid state (light dermatitis "en coulée" or light dermatitis "en brelogue"). The author reviews several case histories to illustrate the various skin disorders produced by sunlight.

81:1839-1892 (Sept. 2) 1941. **Partial Index**

*Polybacteriophage in Treatment of Bacillary Dysentery. J. Soesman.—p. 1863.
*Papillomatous Skin Proliferations in Genitoanal Region Caused by Amebas. R. Goenawan.—p. 1875.

Polybacteriophage in Treatment of Bacillary Dysentery.—Soesman reports 50 cases of bacillary dysentery in which he employed polyvalent bacteriophage; 17 of the patients were adults and 33 were children. The polyvalent bacteriophage was administered by mouth. The case histories indicate that the adults usually were given six times daily one ampule of 2 cc. for two days. In some patients this produced cure, but in others the bacteriophage treatment was continued for a number of days with three or less ampules. Children received in the beginning usually three ampules daily and later one ampule, but some were given larger doses. All the patients recovered, and in most of them the severe symptoms disappeared rapidly. The author concludes that polyvalent bacteriophage is a valuable asset in the therapeutic armamentarium against acute bacillary intestinal infections.

Genitoanal Proliferations Caused by Amebas.—Goenawan describes 3 cases of papillomatous proliferations in the genitoanal region. Examination disclosed the presence of Endameba histolytica, and treatment with emetine was instituted. This proved effective after previous symptomatic treatment had failed.